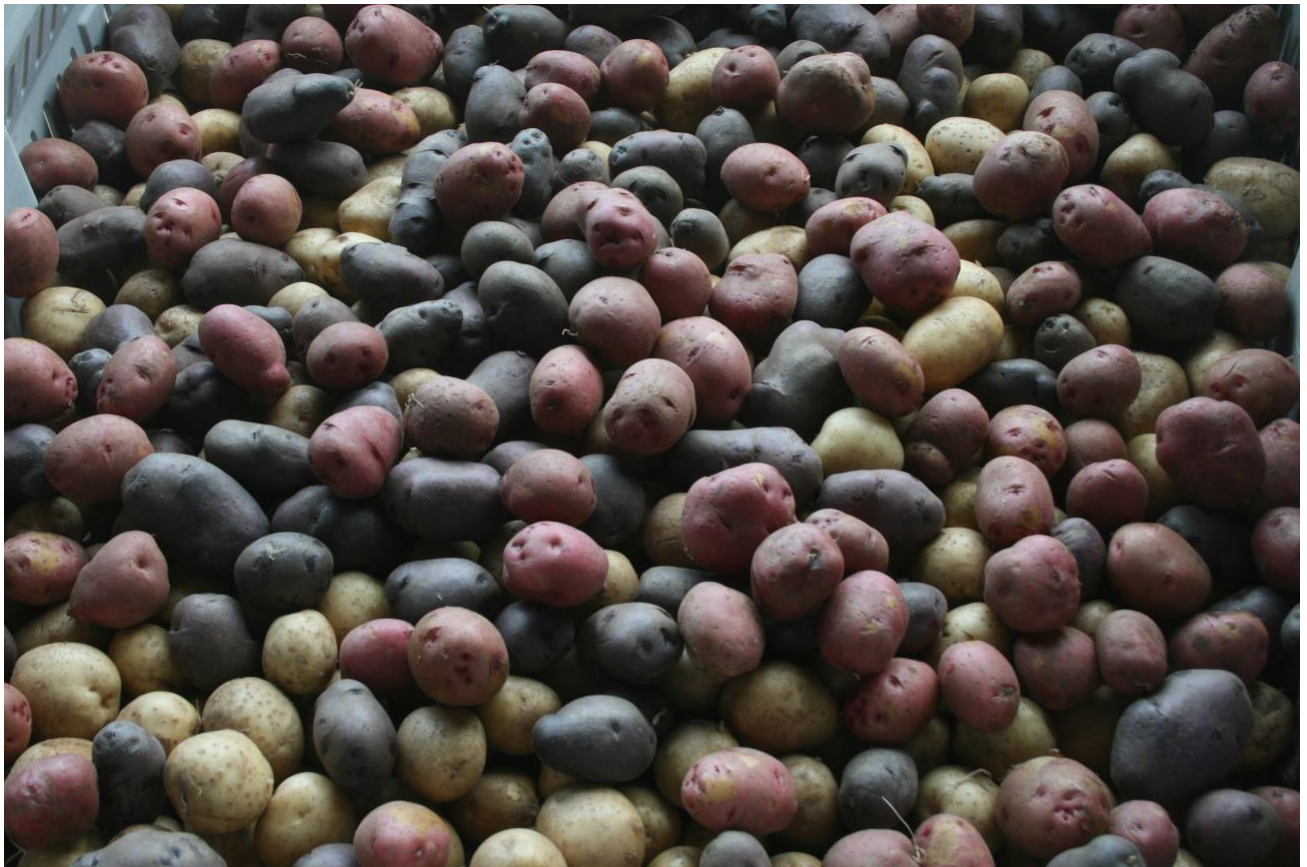


Florida Potato Variety Trial Report, 2023



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HORTICULTURAL SCIENCES DEPARTMENT
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES



Florida Potato Variety Trial Report, 2023

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Photograph

Cover photo: Pam Solano.

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This publication is also available online at: <https://hos.ifas.ufl.edu/extension/variety-trials/>

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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, 2022. Potato beds were fumigated with Telone II C35, 7.7 gal/A (1,3-dichloropropene 63.4%, and chloropicrin 34.7%) in December 2022. 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).

Seasonal Weather and Growing Conditions

Daily rainfall and temperatures are reported in Appendix 1. The data 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 2023 growing season were rated as very good up to April 27, 2023, when a severe localized storm occurred (Appendix 2, 3). Potato tops were severely damaged by the hailstorm. After the storm, the experimental area was immediately drained to minimize tuber losses. The total precipitation between planting and harvest was 11.23", concentrated during middle stages of plant growth and early tuber bulking (Table 36). Overall air temperatures were favorable for crop development, and there were no freeze events (Table 37).

Production

There were no major changes to the production system in 2023.

Figure 1. Potato Variety Program Evaluation Flowchart.

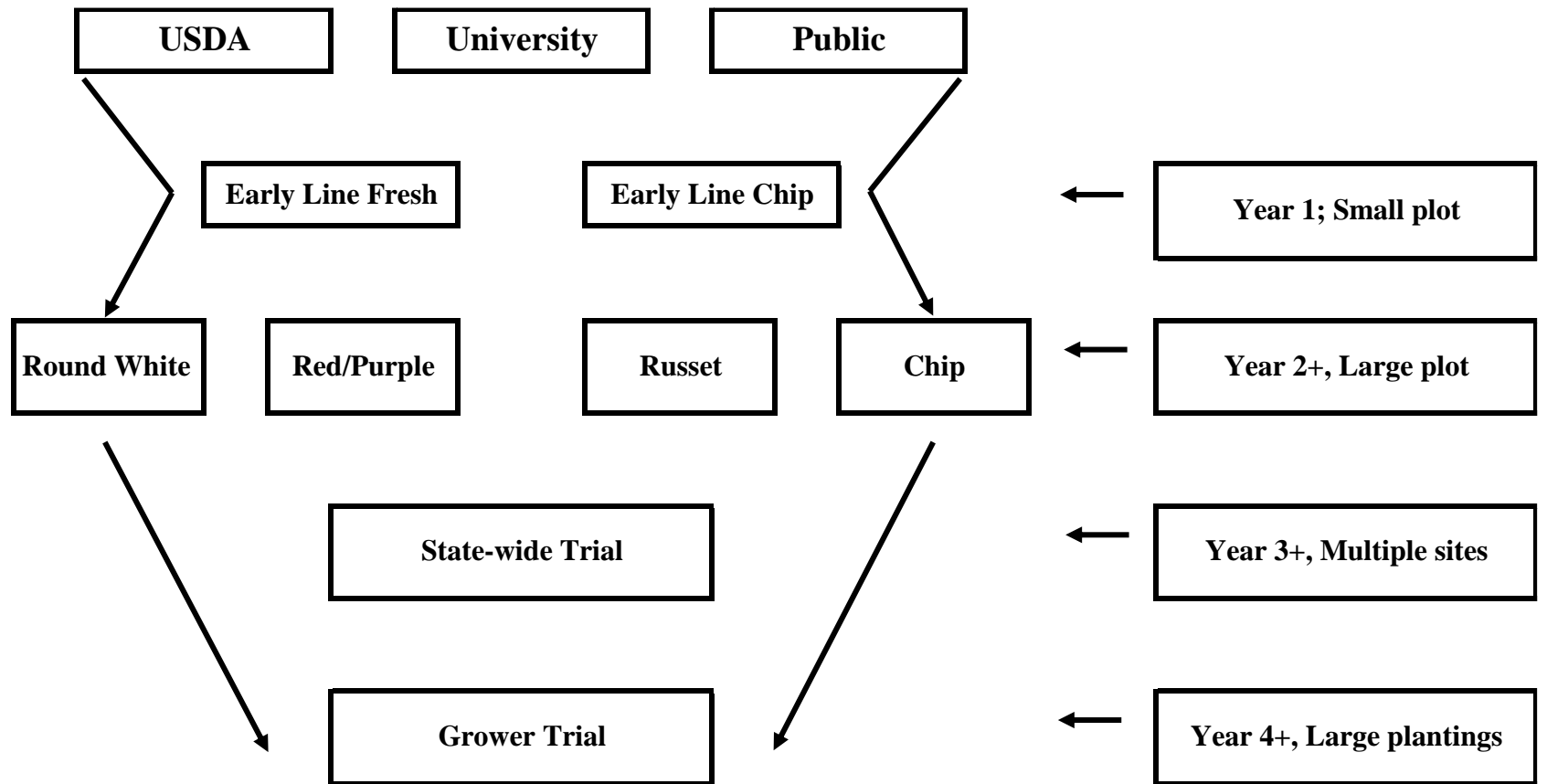


Table 1. Plant growth characteristics.

Rating	Early Vigor	Vine Type	Vine Maturity
	(plant height)		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.

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

Adapted from Sisson and Porter, 2002.

Chapter 2. USDA 2nd Year Potato Variety Trial

General Comments

A goal of the 2nd year USDA trial is to continue evaluating new clones for production potential in Florida. The entries in this trial were selected from an early generation clone trial conducted in 2022.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2023
Vine Kill Date	N/A
Harvest Date	May 8, 2023
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	87
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	47 DAP
Highest Total Yield	NC1201-2 (616 cwt/acre or 69.1 T/ha)
Highest Marketable Yield	NC1201-2 (467 cwt/acre or 52.4 T/ha)
Best Appearance Rating	NC1189-11, NC1202-6, NC1203-3 (9, excellent)

Table 3. Production statistics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-96 days</u>												
B3501-1	268	179	78	3	4	53	40	0	0	93	40	1.069
B3502-2	437	289	126	8	5	20	67	0	0	86	67	1.073
B3502-6	234	162	70	8	3	41	48	0	0	89	48	1.075
B3503-3	239	185	80	4	6	25	65	0	0	91	65	1.079
B3503-4	300	185	80	2	0	28	70	0	0	98	70	1.063
B3503-6	267	168	73	7	24	54	15	0	0	69	15	1.069
B3504-2	187	81	35	8	15	26	52	0	0	77	52	1.084
B3505-3	295	181	79	10	19	48	22	0	0	70	22	1.063
B3505-11	300	169	73	16	18	47	19	0	0	66	19	1.074
B3506-5	380	306	133	1	7	19	73	0	0	92	73	1.073
B3506-9	363	272	118	10	15	31	44	0	0	75	44	1.078
B3508-2	357	261	113	6	10	23	61	0	0	84	61	1.082
B3509-5	296	177	77	11	22	29	38	0	0	67	38	1.074
B3509-8	279	180	78	9	13	34	43	0	0	77	43	1.070
B3511-3	434	234	102	6	9	28	57	0	0	85	57	1.075
B3513-3	263	126	55	2	27	47	24	0	0	71	24	1.060
B3514-1	226	159	69	3	11	32	53	0	0	86	53	1.062
B3514-4	282	243	105	3	3	35	59	0	0	94	59	1.068
B3516-3	381	288	125	2	7	31	59	0	0	90	59	1.070
B3517-1	276	196	85	0	2	17	82	0	0	98	82	1.070
B3517-4	306	197	86	6	12	5	77	0	0	82	77	1.073
B3518-3	248	210	91	1	3	21	75	0	0	96	75	1.072
B3519-7	289	234	102	2	5	39	54	0	0	92	54	1.075
B3520-6	390	261	113	8	3	22	58	10	0	90	68	1.067
B3521-1	218	147	64	7	8	52	33	0	0	85	33	1.069
B3521-2	335	222	96	5	11	39	46	0	0	85	46	1.067
B3522-2	267	165	72	11	22	48	19	0	0	67	19	1.075
B3522-5	229	168	73	4	6	31	58	0	0	89	58	1.076
B3523-2	346	248	107	7	9	15	70	0	0	84	70	1.066
B3525-2	415	251	109	8	9	18	65	0	0	83	65	1.064

Table 3 (cont'd). Production statistics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
B3525-6	415	283	123	9	13	24	54	0	0	78	54	1.073
B3527-7	411	297	129	3	6	16	75	0	0	91	75	1.071
B3528-2	319	215	93	11	18	26	44	0	0	71	44	1.066
B3529-2	483	376	163	5	9	19	60	7	0	86	67	1.067
B3530-5	370	277	120	3	17	21	59	0	0	80	59	1.062
B3532-3	248	180	78	8	14	44	34	0	0	77	34	1.071
B3533-1	273	185	80	8	14	32	47	0	0	79	47	1.066
B3533-4	221	105	46	15	26	22	37	0	0	58	37	1.076
B3535-1	344	228	99	10	19	24	47	0	0	71	47	1.068
B3535-2	407	287	124	11	8	24	57	0	0	81	57	1.078
B3535-6	395	268	116	5	11	18	66	0	0	84	66	1.078
B3535-9	390	319	138	4	6	12	79	0	0	91	79	1.082
B3536-5	290	184	80	3	6	12	79	0	0	91	79	1.077
B3536-6	273	199	86	5	12	71	11	0	0	83	11	1.079
B3537-2	318	266	115	4	7	26	64	0	0	89	64	1.085
B3537-4	563	356	154	5	3	34	58	0	0	92	58	1.074
B3537-10	335	167	72	12	11	24	53	0	0	77	53	1.071
B3538-2	490	346	150	2	2	10	86	0	0	97	86	1.064
B3538-3	415	272	118	8	8	23	60	0	0	84	60	1.078
B3539-4	381	275	119	3	12	20	66	0	0	85	66	1.069
B3541-4	308	250	109	1	10	28	61	0	0	89	61	1.080
B3542-6	348	200	87	6	8	23	64	0	0	87	64	1.076
B3542-10	307	195	85	5	8	45	43	0	0	88	43	1.077
NC1187-1	356	215	93	6	13	25	55	0	0	80	55	1.075
NC1188-1	457	310	135	6	5	39	50	0	0	89	50	1.075
NC1189-5	496	359	156	4	1	21	74	0	0	95	74	1.062
NC1189-11	437	203	88	11	26	42	21	0	0	63	21	1.071
NC1190-1	350	184	80	10	15	18	58	0	0	75	58	1.078
NC1191-7	372	311	135	4	2	19	67	8	0	94	75	1.072
NC1192-4	359	288	125	4	7	30	59	0	0	89	59	1.065

Table 3 (cont'd). Production statistics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
NC1193-1	328	203	88	0	11	24	66	0	0	89	66	1.076
NC1194-4	374	276	120	8	16	25	51	0	0	76	51	1.080
NC1194-7	132	69	30	10	16	35	38	0	0	73	38	1.080
NC1195-1	220	156	68	2	3	7	89	0	0	95	89	1.083
NC1195-7	275	118	51	6	18	12	64	0	0	76	64	1.075
NC1196-1	396	242	105	5	13	26	57	0	0	82	57	1.081
NC1197-3	434	353	153	5	7	31	57	0	0	89	57	1.070
NC1198-3	451	291	126	6	15	21	58	0	0	79	58	1.067
NC1199-1	273	201	87	2	2	16	80	0	0	96	80	1.065
NC1199-2	349	230	100	5	7	29	51	7	0	87	59	1.066
NC1200-2	442	341	148	5	6	24	65	0	0	89	65	1.072
NC1201-2	616	467	203	4	9	18	68	0	0	87	68	1.069
NC1201-3	310	200	87	7	7	36	51	0	0	86	51	1.071
NC1202-3	574	390	169	6	14	20	61	0	0	81	61	1.065
NC1202-6	370	275	119	4	4	24	68	0	0	92	68	1.066
NC1203-3	364	264	114	4	12	20	65	0	0	84	65	1.076
NC1204-4	361	215	93	8	10	50	32	0	0	82	32	1.074
NC1205-2	425	320	139	3	10	34	53	0	0	87	53	1.067
NC1207-6	271	234	102	4	2	29	65	0	0	94	65	1.064
NC1209-1	279	200	87	5	9	27	58	0	0	85	58	1.075
NC1211-1	401	282	122	6	11	37	47	0	0	83	47	1.064
NC1212-1	351	224	97	18	12	44	26	0	0	70	26	1.063
NC1213-3	371	197	86	9	22	26	43	0	0	69	43	1.078
NC1214-1	251	172	74	10	8	64	18	0	0	82	18	1.064
NC1216-1	58	42	18	7	0	69	25	0	0	93	25	1.074
AF7280-3	465	266	115	8	10	16	67	0	0	82	67	1.078
AF7321-4	454	229	99	21	17	25	37	0	0	62	37	1.080
Atlantic	444	230	100	10	13	14	63	0	0	77	63	1.077
Harley Blackwell (B0564-8)	437	271	118	11	8	24	58	0	0	81	58	1.080
Snowden	338	309	134	3	2	18	77	0	0	95	77	1.076

Table 3 (cont'd). Production statistics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
Peter Wilcox (B1816-5)	315	238	103	4	13	51	32	0	0	83	32	1.069
Soraya	529	281	122	8	19	28	45	0	0	73	45	1.055

¹Marketable Yield: size classes A1 to A3.

²Size 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 2023 USDA 2nd Year Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
B3501-1	100	9	6	8						7	4
B3502-2	100	9	9	8						6	2
B3502-6	88	9	9	8						7	3
B3503-3	100	9	9	8						7	3
B3503-4	88	9	9	8						7	3
B3503-6	100	9	6	7						8	2
B3504-2	100	8	9	6						7	4
B3505-3	88	9	6	7						5	2
B3505-11	100	9	9	7						7	2
B3506-5	100	9	9	7						7	2
B3506-9	100	9	9	7						6	1
B3508-2	100	9	9	7						7	2
B3509-5	100	9	9	7						6	3
B3509-8	100	9	9	6						8	3
B3511-3	100	9	9	8						7	3
B3513-3	100	9	9	7						4	4
B3514-1	100	9	9	7						5	3
B3514-4	88	8	9	8						8	2
B3516-3	100	9	9	7						4	2
B3517-1	100	9	9	7						7	2
B3517-4	100	9	9	6						5	2
B3518-3	88	9	9	6						7	3
B3519-7	100	9	9	7						7	2
B3520-6	100	9	9	7						7	2
B3521-1	100	9	9	4						7	3
B3521-2	88	9	9	6						6	2
B3522-2	100	9	6	6						6	3
B3522-5	100	9	9	7						5	3
B3523-2	100	9	6	8						6	2
B3525-2	100	9	6	8						8	2

Table 4 (cont'd). Plant growth and tuber characteristics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
B3525-6	100	9	6	7						7	3
B3527-7	100	9	6	8						7	3
B3528-2	100	9	6	6						6	1
B3529-2	100	9	6	7						4	3
B3530-5	100	9	9	7						4	1
B3532-3	88	9	9	7						8	2
B3533-1	75	9	9	7						6	3
B3533-4	100	9	9	6						8	3
B3535-1	88	9	9	6						6	1
B3535-2	100	9	6	7						8	2
B3535-6	88	9	9	8						8	2
B3535-9	100	9	6	7						6	2
B3536-5	100	9	6	6						7	4
B3536-6	100	9	6	6						7	2
B3537-2	100	9	6	7						6	3
B3537-4	100	9	6	6						6	3
B3537-10	100	9	6	7						5	3
B3538-2	100	9	9	7						7	2
B3538-3	100	9	6	8						6	2
B3539-4	100	9	6	7						4	2
B3541-4	100	9	6	6						5	2
B3542-6	100	9	9	7						7	3
B3542-10	100	9	9	7						6	3
NC1187-1	100	9	6	6						6	3
NC1188-1	100	9	9	7						8	3
NC1189-5	88	9	6	8						7	2
NC1189-11	88	9	9	5						9	2
NC1190-1	100	9	9	8						6	3
NC1191-7	75	9	9	8						7	3
NC1192-4	100	9	9	5						8	3

Table 4 (cont'd). Plant growth and tuber characteristics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
NC1193-1	100	9	6	6						6	4
NC1194-4	100	9	9	8						6	1
NC1194-7	100	9	9	6						7	4
NC1195-1	100	9	9	7						6	4
NC1195-7	100	9	9	7						6	4
NC1196-1	100	9	9	6						7	2
NC1197-3	100	9	6	6						7	1
NC1198-3	100	9	6	5						6	2
NC1199-1	100	9	9	8						8	3
NC1199-2	100	9	6	7						6	3
NC1200-2	100	9	6	5						6	2
NC1201-2	100	9	6	5						7	3
NC1201-3	100	9	6	5						6	3
NC1202-3	100	9	9	7						8	3
NC1202-6	100	9	9	7						9	2
NC1203-3	100	8	9	6						9	2
NC1204-4	100	9	9	5						8	2
NC1205-2	88	9	6	5						7	2
NC1207-6	88	9	9	6						8	2
NC1209-1	88	9	9	5						7	2
NC1211-1	100	9	9	5						8	2
NC1212-1	100	9	9	5						8	1
NC1213-3	100	9	9	5						6	3
NC1214-1	100	9	6	6						5	3
NC1216-1	100	9	9	8						5	4
AF7280-3	100	9	9	6						7	4
AF7321-4	100	9	9	7						7	2
Atlantic	100	9	9	8						7	-
Harley Blackwell (B0564-8)	100	9	6	7						8	3
Snowden	100	9	9	6						8	1

Table 4 (cont'd). Plant growth and tuber characteristics for the 2023 USDA 2nd Year Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Peter Wilcox (B1816-5)	100	9	9	7						7	1
Soraya	100	9	9	8						7	2

¹Percent 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.

²Internal 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 2023 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
B3501-1	2	5	0	22	28	0	0	10	20
B3502-2	5	4	0	14	23	0	0	0	0
B3502-6	5	0	14	3	22	0	0	0	0
B3503-3	0	0	6	9	15	0	0	20	0
B3503-4	6	0	4	28	37	0	0	0	0
B3503-6	0	0	2	7	9	0	0	0	0
B3504-2	0	0	13	31	44	0	0	0	0
B3505-3	0	0	1	11	13	0	0	0	0
B3505-11	0	0	0	14	14	0	0	0	0
B3506-5	7	0	0	6	13	0	0	0	0
B3506-9	0	0	0	0	0	0	0	0	0
B3508-2	0	2	4	8	13	0	0	0	0
B3509-5	0	6	5	0	12	0	0	20	0
B3509-8	0	0	7	10	17	0	0	30	0
B3511-3	12	0	2	23	37	0	0	0	0
B3513-3	9	0	0	24	33	0	0	0	0
B3514-1	0	0	10	7	18	0	0	0	0
B3514-4	0	0	6	2	8	0	0	0	10
B3516-3	0	0	14	3	16	0	0	0	0
B3517-1	0	0	13	15	28	0	0	0	0
B3517-4	4	0	18	0	22	0	0	0	0
B3518-3	0	0	5	7	12	0	0	10	0
B3519-7	0	0	9	3	12	0	0	0	0
B3520-6	0	0	7	18	26	0	0	0	0
B3521-1	0	0	0	20	20	0	0	0	0
B3521-2	0	0	10	12	22	0	0	0	0
B3522-2	3	0	5	0	8	0	0	10	0
B3522-5	5	0	0	13	18	0	0	10	0
B3523-2	0	0	12	3	15	0	0	0	0
B3525-2	13	0	13	0	27	0	0	0	0

Table 5 (cont'd). External and internal defects for the 2023 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
B3525-6	4	0	8	0	12	0	0	0	10
B3527-7	13	0	4	4	21	0	0	11	0
B3528-2	0	0	0	5	5	0	0	0	0
B3529-2	7	0	0	2	10	0	0	20	0
B3530-5	0	0	2	4	6	0	0	0	0
B3532-3	0	0	0	6	6	0	0	0	0
B3533-1	0	0	6	8	14	0	0	0	20
B3533-4	0	0	0	18	18	0	0	0	0
B3535-1	0	0	3	4	7	0	0	0	0
B3535-2	6	0	0	7	13	0	0	0	0
B3535-6	0	0	8	11	19	0	0	0	0
B3535-9	3	0	0	7	10	0	0	0	0
B3536-5	0	0	0	30	30	0	20	0	0
B3536-6	2	0	0	10	12	0	0	0	0
B3537-2	6	0	0	0	6	20	0	0	0
B3537-4	0	30	0	1	31	0	0	0	0
B3537-10	0	25	10	0	35	10	0	0	10
B3538-2	4	0	3	21	27	0	0	0	0
B3538-3	4	0	5	12	22	0	0	0	0
B3539-4	4	0	0	11	16	0	0	0	0
B3541-4	0	0	3	6	9	10	0	0	0
B3542-6	0	0	0	34	34	0	0	0	0
B3542-10	15	0	0	12	28	20	0	0	0
NC1187-1	0	0	13	12	25	0	0	0	10
NC1188-1	0	0	2	21	24	0	0	0	10
NC1189-5	0	0	22	2	24	0	0	0	0
NC1189-11	0	0	10	16	26	0	0	0	0
NC1190-1	0	15	9	7	30	0	0	0	0
NC1191-7	0	0	5	6	11	0	0	0	10
NC1192-4	0	0	3	7	10	0	0	0	10

Table 5 (cont'd). External and internal defects for the 2023 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
NC1193-1	5	9	4	12	30	10	0	0	60
NC1194-4	0	0	0	3	3	0	0	0	0
NC1194-7	0	0	0	29	29	0	0	0	0
NC1195-1	6	0	17	3	26	0	0	10	10
NC1195-7	4	0	3	37	44	0	0	0	13
NC1196-1	2	0	13	10	26	0	0	0	0
NC1197-3	0	0	5	4	8	0	0	0	0
NC1198-3	0	0	4	15	18	0	0	0	0
NC1199-1	8	0	12	4	23	0	10	0	0
NC1199-2	0	0	21	4	24	0	0	0	10
NC1200-2	0	0	7	6	13	0	0	0	0
NC1201-2	0	0	7	6	13	20	0	0	10
NC1201-3	6	0	13	6	25	10	0	0	0
NC1202-3	4	0	7	5	16	0	0	20	0
NC1202-6	0	0	7	12	19	0	0	0	0
NC1203-3	2	0	5	7	14	0	0	0	0
NC1204-4	0	2	0	25	27	0	0	0	0
NC1205-2	0	0	4	9	13	0	0	0	0
NC1207-6	0	5	0	3	8	10	0	0	10
NC1209-1	0	0	2	13	16	0	0	0	0
NC1211-1	0	0	6	9	16	0	0	0	0
NC1212-1	0	0	4	4	8	0	0	0	0
NC1213-3	0	0	11	12	23	0	0	30	0
NC1214-1	0	0	0	16	16	0	0	10	0
NC1216-1	0	0	0	23	23	0	0	0	0
AF7280-3	0	14	3	14	31	0	0	10	0
AF7321-4	0	0	2	16	18	0	0	0	0
Atlantic	0	0	3	30	33	20	0	0	0
Harley Blackwell (B0564-8)	0	9	2	12	24	10	0	0	0
Snowden	0	0	3	0	3	0	0	0	0

Table 5 (cont'd). External and internal defects for the 2023 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Peter Wilcox (B1816-5)	0	0	9	0	9	0	0	0	0
Soraya	0	5	5	18	27	0	0	0	0

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

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

Chapter 3. USDA 3rd Year Potato Variety Trial

General Comments

A goal of the 3rd year USDA trial is to continue evaluating new clones for production potential in Florida. The entries in this trial were selected from the 2nd year clone trial conducted in 2022.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2023
Vine Kill Date	N/A
Harvest Date	May 8, 2023
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	9
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	47 DAP
Highest Total Yield	NC1122-1 (481 cwt/acre or 53.9 T/ha)
Highest Marketable Yield	NC1122-1 (367 cwt/acre or 41.1 T/ha)
Best Appearance Rating	NC1163-2, Soraya (9, excellent)

Table 6. Production statistics for the 2023 USDA 3rd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-96 days</u>												
NC1106-1	330	194	64	9	9	17	65	0	0	82	65	1.086
NC1111-1	387	229	76	4	8	31	57	0	0	88	57	1.073
NC1113-1	345	243	80	5	6	26	63	0	0	89	63	1.061
NC1122-1	481	367	121	5	9	32	54	0	0	86	54	1.069
NC1147-1	205	67	22	34	33	27	6	0	0	33	6	1.072
NC1160-1	371	254	84	10	17	26	47	0	0	73	47	1.074
NC1163-2	379	274	90	7	6	32	54	0	0	87	54	1.064
NC1165-2	301	217	72	6	17	40	37	0	0	77	37	1.072
NC1165-3	214	121	40	11	26	42	21	0	0	63	21	1.053
Atlantic	402	303	100	2	7	18	73	0	0	91	73	1.064
Harley Blackwell (B0564-8)	302	224	74	8	12	22	59	0	0	80	59	1.081
Snowden	340	296	98	2	5	33	59	0	0	93	59	1.081
Peter Wilcox (B1816-5)	299	201	66	7	22	18	54	0	0	71	54	1.076
Soraya	328	203	67	11	22	0	66	0	0	66	66	1.060

¹Marketable Yield: size classes A1 to A3.

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

Table 7. Plant growth and tuber characteristics for the 2023 USDA 3rd Year Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
NC1106-1	100	9	9	8						7	3
NC1111-1	100	9	6	7						6	4
NC1113-1	100	9	9	7						7	3
NC1122-1	100	9	9	8						8	3
NC1147-1	79	9	6	4						5	3
NC1160-1	100	9	9	5						8	3
NC1163-2	100	9	6	4						9	2
NC1165-2	100	9	6	5						7	3
NC1165-3	100	9	9	4						8	3
Atlantic	100	9	6	7						7	-
Harley Blackwell (B0564-8)	96	9	6	6						7	2
Snowden	100	9	6	5						8	1
Peter Wilcox (B1816-5)	100	9	9	6						6	2
Soraya	100	9	9	7						9	2

¹Percent 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.

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

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

Table 8. External and internal defects for the 2023 USDA 3rd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
NC1106-1	0	3	10	16	28	0	0	0	0
NC1111-1	0	3	11	19	33	0	0	0	20
NC1113-1	0	2	7	11	20	0	0	0	0
NC1122-1	0	0	3	8	11	0	0	22	0
NC1147-1	0	0	0	1	1	0	0	0	0
NC1160-1	0	0	4	3	7	0	0	0	10
NC1163-2	2	0	10	5	17	0	0	0	0
NC1165-2	0	2	0	4	6	0	0	40	0
NC1165-3	0	0	4	7	11	0	0	0	0
Atlantic	3	2	6	6	17	0	0	0	0
Harley Blackwell (B0564-8)	0	0	1	7	8	0	0	0	0
Snowden	0	0	4	3	6	0	0	0	0
Peter Wilcox (B1816-5)	0	0	0	6	6	0	0	0	0
Soraya	0	1	3	3	7	0	0	0	0

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

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

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

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 9, 2023
Vine Kill Date	May 2, 2023
Harvest Date	May 15, 2023
Season Length	82 days planting to vine kill; 95 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	19 (Standard: Red LaSoda)
Number of Clones	1
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	46 DAP
Highest Total Yield	Malou (328 cwt/acre or 36.8 T/ha)
Highest Marketable Yield	Red LaSoda (192 cwt/acre or 21.5 T/ha)
Best Appearance Rating	Natascha (9, excellent)

Table 9. Production statistics for the 2023 Fresh Market, Red, and Purple Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-82 days</u>												
Almera	255	126	66	10	32	42	15	0	0	58	15	1.057
Floridana	290	101	53	31	33	25	11	0	0	36	11	1.053
Malou	328	120	62	27	33	30	9	0	0	40	9	1.055
Montana	317	120	63	25	32	31	12	0	0	43	12	1.050
PSS13/041/2	272	106	55	21	39	37	2	0	0	39	2	1.064
Adirondack Blue	277	151	79	16	27	42	15	0	0	57	15	1.060
All Blue	192	23	12	47	42	11	0	0	0	11	0	1.064
Chieftain	224	131	68	9	20	51	20	0	0	71	20	1.058
Dark Red Norland	218	72	37	33	32	27	8	0	0	35	8	1.062
French Fingerling	127	14	8	61	27	12	0	0	0	12	0	1.067
Golden Globe	253	91	47	20	39	31	10	0	0	41	10	1.054
Goldrush	236	140	73	14	24	51	11	0	0	62	11	1.061
Lamoka (NY139)	168	97	51	11	23	48	18	0	0	66	18	1.065
Natascha	212	86	45	26	30	40	4	0	0	44	4	1.057
Peter Wilcox (B1816-5)	247	90	47	25	39	33	4	0	0	36	4	1.067
Red LaSoda	281	192	100	9	15	41	35	0	0	76	35	1.059
Satina	272	182	95	7	11	36	47	0	0	83	47	1.056
Soraya	226	108	56	20	35	35	10	0	0	45	10	1.054
Strawberry Paw (NY136)	208	99	52	19	29	39	12	0	0	52	12	1.061
Yukon Gold	176	91	47	17	23	43	16	0	0	60	16	1.066
MSD ³	160	129		22	22	18	22	ns	ns	28	22	0.010
P Value	0.0026	0.0010		<0.0001	0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001

¹Marketable Yield: size classes A1 to A3.

²Size 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.

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

Table 10. Plant growth and tuber characteristics for the 2023 Fresh Market, Red, and Purple Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²					
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP
Almera	80	9	8	3	3	8	9	6	9	7
Floridana	93	9	8	3	3	8	9	3	9	8
Malou	97	9	8	3	3	8	9	3	6	8
Montana	100	9	8	4	4	8	9	6	9	8
PSS13/041/2	96	9	9	4	1	2	9	3	9	8
Adirondack Blue	93	9	8	2	9	1	8	4	5	5
All Blue	97	8	9	3	9	1	8	6	6	5
Chieftain	97	9	9	6	1	2	8	3	7	7
Dark Red Norland	98	9	8	3	1	2	9	3	6	8
French Fingerling	93	9	7	2	3	3	9	6	7	7
Golden Globe	99	9	9	2	3	8	9	3	8	8
Goldrush	97	9	8	5	1	5	4	6	8	8
Lamoka (NY139)	96	9	9	6	1	8	7	3	9	5
Natascha	90	9	8	4	4	7	9	4	7	9
Peter Wilcox (B1816-5)	97	9	9	4	3	1	8	3	8	7
Red LaSoda	100	9	8	2	1	2	9	3	5	7
Satina	97	8	8	4	3	8	8	3	7	8
Soraya	91	9	8	4	4	7	8	3	8	8
Strawberry Paw (NY136)	98	9	8	3	1	2	9	3	8	8
Yukon Gold	84	9	9	3	3	8	8	3	9	7

¹Percent 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.

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

Table 11. External and internal defects for the 2023 Fresh Market, Red, and Purple Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Almera	0	0	1	12	13	0	0	0	0
Floridana	0	0	0	5	5	0	0	0	3
Malou	0	2	0	2	4	0	0	0	3
Montana	0	0	0	12	12	3	0	0	0
PSS13/041/2	0	0	0	3	3	0	0	0	0
Adirondack Blue	0	0	0	8	8	0	0	0	0
All Blue	0	0	0	3	3	0	0	0	0
Chieftain	0	0	0	18	18	0	0	0	0
Dark Red Norland	0	0	0	6	6	0	0	0	0
French Fingerling	0	0	0	4	4	0	0	7	13
Golden Globe	0	0	0	12	12	0	0	0	0
Goldrush	0	0	0	4	4	0	0	0	0
Lamoka (NY139)	0	0	0	16	16	0	0	0	0
Natascha	0	0	0	7	7	0	0	3	3
Peter Wilcox (B1816-5)	0	0	0	1	1	0	0	0	7
Red LaSoda	0	0	0	13	13	0	0	3	3
Satina	0	0	0	21	21	0	0	0	0
Soraya	0	0	0	5	5	0	0	0	3
Strawberry Paw (NY136)	0	0	0	10	10	0	0	0	0
Yukon Gold	0	0	0	16	16	10	0	0	7
MSD ³	ns	ns	ns	15	15	ns	ns	ns	ns
P Value	-	0.4823	0.4823	<0.0001	<0.0001	0.5296	-	0.5895	0.6919

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

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

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

Chapter 5. University of Maine Advanced Selection Potato Variety Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 9, 2023
Vine Kill Date	May 2, 2023
Harvest Date	May 15, 2023
Season Length	82 days planting to vine kill; 95 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	4 (Standard: Atlantic)
Number of Clones	32
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	46 DAP
Highest Total Yield	AF5280-5 (328 cwt/acre or 36.8 T/ha)
Highest Marketable Yield	AF5280-5 (233 cwt/acre or 26.1 T/ha)
Best Appearance Rating	AF6655-1, AF6551-4, AF6896-1, AF6980-1 (9, excellent)

Table 12. Production statistics for the 2023 University of Maine Advanced Selection Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-82 days</u>												
Atlantic	244	181	100	4	12	38	46	0	0	84	46	1.079
Harley Blackwell (B0564-8)	228	132	73	16	18	56	10	0	0	66	10	1.063
Snowden	272	171	95	8	26	43	23	0	0	66	23	1.069
Yukon Gold	166	103	57	11	16	38	35	0	0	73	35	1.066
AF5280-5	328	233	129	6	12	38	44	0	0	82	44	1.058
AF5406-7	220	114	63	11	31	50	9	0	0	58	9	1.060
NDAF113484B-1	156	74	41	15	32	38	15	0	0	53	15	1.055
AF6200-7	206	132	73	11	21	41	27	0	0	68	27	1.080
AF6526-7	232	152	84	13	18	31	37	0	0	69	37	1.078
AF6552-2	205	103	57	13	30	38	19	0	0	57	19	1.068
AF6652-3	266	174	97	5	24	36	36	0	0	71	36	1.067
AF6655-1	223	99	55	19	34	28	19	0	0	47	19	1.068
AF6665-3	238	115	64	25	24	42	10	0	0	52	10	1.062
AF6669-10	223	111	61	16	31	33	19	0	0	53	19	1.074
AF6671-10	274	205	113	7	14	32	46	0	0	79	46	1.078
AF6675-1	278	169	94	10	23	42	24	0	0	66	24	1.066
AAF11546-3	271	145	80	12	31	48	9	0	0	57	9	1.052
WAF17045-2	217	108	60	17	28	30	25	0	0	55	25	1.072
AF5412-3	232	143	79	9	25	53	13	0	0	66	13	1.050
AF6286-1	194	81	45	21	37	38	4	0	0	42	4	1.060
AF6541-3	257	161	89	8	19	37	35	0	0	72	35	1.067
AF6551-4	201	125	69	7	22	28	42	0	0	70	42	1.059
AF6575-6	232	51	28	33	45	21	2	0	0	22	2	1.062
AF6694-1	224	84	46	21	40	29	10	0	0	39	10	1.056
AF6694-8	217	104	57	15	31	42	12	0	0	54	12	1.056
AF6888-15	152	98	54	11	14	46	29	0	0	75	29	1.071
AF6896-1	275	162	90	7	28	48	17	0	0	65	17	1.075
AF6898-1	193	107	59	22	22	46	10	0	0	56	10	1.074
AF6978-1	318	214	118	10	17	41	32	0	0	73	32	1.063
AF6980-1	255	93	51	32	31	28	9	0	0	37	9	1.066

Table 12 (cont'd). Production statistics for the 2023 University of Maine Advanced Selection Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AF6868-6	210	77	42	26	35	28	11	0	0	39	11	1.072
AF6903-3	285	159	88	16	24	45	14	0	0	60	14	1.063
AF6932-4	246	140	78	11	25	40	24	0	0	64	24	1.055
AF6963-8	247	156	86	4	15	42	39	0	0	81	39	1.062
AF6965-5	273	182	101	8	20	51	22	0	0	73	22	1.064
NDAF1727Y-1	179	115	64	9	22	23	46	0	0	69	46	1.060
MSD ³	119	99		14	20	19	23	ns	ns	26	23	0.018
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001

¹Marketable Yield: size classes A1 to A3.

²Size 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.

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

Table 13. Plant growth and tuber characteristics for the 2023 University of Maine Advanced Selection Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Atlantic	88	9	8	5						7	-
Harley Blackwell (B0564-8)	93	9	8	5						6	2
Snowden	89	9	6	3						7	2
Yukon Gold	71	9	9	3						7	3
AF5280-5	98	9	7	4						6	2
AF5406-7	93	9	8	5						8	3
NDAF113484B-1	92	9	9	3						7	3
AF6200-7	89	9	8	4						8	2
AF6526-7	91	9	6	5						6	2
AF6552-2	96	9	8	5						5	3
AF6652-3	86	9	6	5						8	1
AF6655-1	93	9	6	5						9	2
AF6665-3	92	9	6	3						7	2
AF6669-10	90	9	6	2						7	2
AF6671-10	100	9	8	3						8	1
AF6675-1	86	9	9	5						6	2
AAF11546-3	100	9	6	2						6	2
WAF17045-2	98	9	8	5						8	3
AF5412-3	88	9	9	3						6	2
AF6286-1	98	9	8	2						6	3
AF6541-3	88	9	6	4						8	2
AF6551-4	95	9	9	4						9	3
AF6575-6	92	9	6	2						6	3
AF6694-1	96	9	8	2						5	3
AF6694-8	85	9	9	3						7	3
AF6888-15	79	9	9	3						4	3
AF6896-1	93	9	8	6						9	2
AF6898-1	85	9	6	4						6	2
AF6978-1	89	9	7	5						8	1
AF6980-1	93	9	7	1						9	3

Table 13 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine Advanced Selection Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF6868-6	98	9	9	4						7	3
AF6903-3	95	9	6	3						7	1
AF6932-4	94	9	6	2						7	2
AF6963-8	100	9	8	4						8	2
AF6965-5	97	9	9	5						6	1
NDAF1727Y-1	98	7	9	3						6	3

¹Percent 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.

²Internal 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 2023 University of Maine Advanced Selection Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Atlantic	1	0	0	11	11	0	0	0	0
Harley Blackwell (B0564-8)	0	0	1	13	14	0	0	0	0
Snowden	0	0	1	4	6	0	0	3	0
Yukon Gold	0	0	3	12	14	0	0	0	0
AF5280-5	0	0	0	15	15	0	0	0	0
AF5406-7	0	2	0	9	11	0	0	0	0
NDAF113484B-1	0	0	0	10	10	0	0	0	0
AF6200-7	0	0	0	7	7	0	0	0	0
AF6526-7	0	0	1	6	7	0	0	0	0
AF6552-2	0	0	1	11	12	3	0	5	0
AF6652-3	0	0	0	9	9	0	0	0	0
AF6655-1	0	0	0	9	9	0	0	0	0
AF6665-3	0	0	1	6	6	0	0	0	0
AF6669-10	0	0	1	5	6	0	0	0	0
AF6671-10	0	0	0	5	5	0	0	0	0
AF6675-1	0	0	1	8	10	0	0	0	0
AAF11546-3	0	0	0	6	6	0	0	0	0
WAF17045-2	0	0	1	13	14	0	0	0	0
AF5412-3	0	0	0	7	7	0	0	0	0
AF6286-1	0	0	0	2	2	0	0	0	0
AF6541-3	0	0	0	13	13	0	0	0	0
AF6551-4	0	0	0	11	11	0	0	0	0
AF6575-6	0	0	0	2	2	0	0	0	0
AF6694-1	0	0	0	8	8	0	0	0	0
AF6694-8	0	0	0	13	13	0	0	0	0
AF6888-15	0	0	0	16	16	0	0	0	0
AF6896-1	0	0	1	9	10	0	0	0	0
AF6898-1	0	0	3	2	4	0	0	0	0
AF6978-1	0	0	0	8	8	0	0	0	0
AF6980-1	0	0	1	5	6	0	0	0	0

Table 14 (cont'd). External and internal defects for the 2023 University of Maine Advanced Selection Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
AF6868-6	0	0	2	9	11	0	0	0	0
AF6903-3	0	0	1	6	8	0	0	0	0
AF6932-4	0	0	0	10	10	0	0	0	0
AF6963-8	0	0	0	22	22	0	0	0	0
AF6965-5	0	0	0	9	9	0	0	0	0
NDAF1727Y-1	0	0	0	19	19	0	0	0	0
MSD ³	1	ns	ns	14	13	ns	ns	4	ns
P Value	0.0309	0.4970	0.2718	<0.0001	<0.0001	0.4816	-	0.0026	-

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

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

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

Chapter 6. University of Maine Early Line Potato Variety Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 9, 2023
Vine Kill Date	May 2, 2023
Harvest Date	May 11, 2023
Season Length	82 days planting to vine kill; 91 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	6 (Standard: Red LaSoda)
Number of Clones	76
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	46 DAP
Highest Total Yield	AF7153-4 (586 cwt/acre or 65.7 T/ha)
Highest Marketable Yield	AF7153-4 (366 cwt/acre or 41.0 T/ha)
Best Appearance Rating	AF7114-4, AF7172-3, COAF18042-2, AAF15338-5, NDAF17119-4, NDAF1821Y-3 (9, excellent)

Table 15. Production statistics for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-82 days</u>												
Red LaSoda	245	161	100	6	13	50	31	0	0	81	31	1.059
Peter Wilcox (B1816-5)	327	165	102	20	29	36	16	0	0	51	16	1.072
Soraya	349	270	168	8	13	49	30	0	0	79	30	1.051
Satina	360	284	176	5	9	32	54	0	0	85	54	1.052
Dark Red Norland	183	94	58	29	14	47	11	0	0	57	11	1.061
All Blue	198	30	19	40	45	16	0	0	0	16	0	1.060
AF7095-7	254	106	66	23	35	39	4	0	0	42	4	1.071
AF7114-4	312	154	96	17	31	46	7	0	0	52	7	1.075
AF7114-12	310	76	47	46	26	12	16	0	0	28	16	1.078
AF7114-15	430	199	124	32	21	29	17	0	0	47	17	1.081
AF7128-4	246	145	90	14	24	46	15	0	0	62	15	1.076
AF7129-2	323	155	96	17	31	45	7	0	0	52	7	1.072
AF7130-3	322	173	108	10	31	31	29	0	0	59	29	1.071
AF7130-6	431	345	214	7	7	41	45	0	0	87	45	1.071
AF7131-2	412	277	172	11	15	41	33	0	0	74	33	1.071
AF7140-1	255	156	97	14	15	44	27	0	0	71	27	1.075
AF7145-2	460	309	192	8	17	49	27	0	0	75	27	1.070
AF7147-3	398	265	165	6	9	41	45	0	0	86	45	1.067
AF7149-2	420	294	183	8	13	44	36	0	0	80	36	1.071
AF7153-4	586	366	227	15	11	33	42	0	0	74	42	1.079
AF7156-1	351	234	145	5	18	27	50	0	0	77	50	1.075
AF7157-7	313	214	133	8	12	38	42	0	0	80	42	1.073
AF7159-2	266	174	108	11	18	46	25	0	0	71	25	1.080
AF7162-3	247	182	113	7	16	39	38	0	0	76	38	1.063
AF7170-7	301	151	94	15	33	38	14	0	0	52	14	1.078
AF7172-1	269	109	68	22	36	36	6	0	0	42	6	1.069
AF7172-3	370	261	162	8	18	36	37	0	0	73	37	1.074
AF7173-7	321	185	115	12	25	38	24	0	0	63	24	1.075
AF7174-3	340	196	122	13	27	46	14	0	0	60	14	1.070
AF7179-6	290	173	107	11	21	27	40	0	0	68	40	1.075

Table 15 (cont'd). Production statistics for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AF7181-3	292	92	57	30	38	25	7	0	0	32	7	1.085
AF7182-6	276	183	114	11	21	45	23	0	0	68	23	1.071
AF7183-2	312	187	116	20	18	53	9	0	0	62	9	1.070
COAF18053-3	267	155	96	17	19	37	27	0	0	65	27	1.057
AAF12219-1	316	119	74	34	24	29	13	0	0	42	13	1.064
AAF12227-1	332	201	125	11	20	32	37	0	0	69	37	1.070
NDAF17137-5	284	185	115	13	19	37	31	0	0	68	31	1.071
AF7137-4	246	72	45	26	44	20	9	0	0	29	9	1.076
AF7090-9	263	139	87	13	26	29	31	0	0	60	31	1.061
AF7095-2	228	47	29	46	33	19	2	0	0	21	2	1.069
AF7095-4	381	197	123	16	30	41	14	0	0	54	14	1.074
AF7095-6	335	186	116	18	25	47	10	0	0	57	10	1.067
AF7098-4	292	52	32	32	50	16	2	0	0	18	2	1.061
AF7103-6	223	108	67	18	32	36	14	0	0	50	14	1.071
AF7108-3	239	147	92	12	22	36	30	0	0	65	30	1.063
AF7111-4	359	176	109	22	25	33	19	0	0	52	19	1.068
AF7151-3	381	246	153	11	14	44	31	0	0	76	31	1.072
AF7166-1	325	216	135	8	20	57	15	0	0	72	15	1.058
AF7170-9dup1	291	126	78	19	36	34	11	0	0	45	11	1.077
AF7175-1	257	125	77	21	29	32	17	0	0	49	17	1.076
AF7175-2	266	127	79	25	26	37	12	0	0	49	12	1.079
AF7175-4	316	220	137	10	17	40	32	0	0	73	32	1.071
AF7182-4	278	185	115	9	20	47	24	0	0	71	24	1.064
COAF18042-2	154	13	8	65	27	9	0	0	0	9	0	1.071
AAF15338-5	268	162	101	14	18	36	32	0	0	68	32	1.047
NDAF17119-4	375	155	96	22	33	31	14	0	0	45	14	1.054
NDAF17137-7	263	166	103	11	21	42	26	0	0	69	26	1.068
NDAF17139-5	232	107	66	22	20	37	22	0	0	59	22	1.060
NDAF17153-1	328	51	31	46	39	13	3	0	0	16	3	1.072
NDAF1821Y-3	411	243	151	9	23	48	19	0	0	68	19	1.058

Table 15 (cont'd). Production statistics for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
NDAF1825Y-3	183	94	59	7	32	44	17	0	0	61	17	1.064
AF7093-1	302	165	103	16	26	31	27	0	0	59	27	1.074
AF7148-2	211	78	49	21	29	32	19	0	0	51	19	1.068
AF7160-2	336	234	145	11	17	41	32	0	0	72	32	1.066
NDAF17155-6	195	54	34	33	38	23	6	0	0	28	6	1.064
AF7039-2	356	91	57	21	52	21	6	0	0	27	6	1.070
AF7040-8	223	156	97	8	13	42	38	0	0	79	38	1.069
AF7041-5	426	126	78	28	39	30	3	0	0	33	3	1.070
AF7043-1	297	155	96	10	34	51	4	0	0	55	4	1.070
AF7045-1	313	136	85	27	24	39	10	0	0	50	10	1.061
AF7050-3	366	166	103	21	31	35	12	0	0	48	12	1.064
AF7055-8	282	111	69	20	37	34	9	0	0	43	9	1.069
AF7055-9	278	69	43	20	55	22	4	0	0	26	4	1.069
AF7079-4	231	98	61	18	37	39	6	0	0	45	6	1.067
COAF18063-7	331	88	55	21	52	24	3	0	0	27	3	1.074
AAF16034-8	263	165	103	4	27	49	20	0	0	69	20	1.071
AAF16065-1	288	182	113	7	26	50	17	0	0	67	17	1.064
AAF10458-3	261	160	99	0	22	58	20	0	0	78	20	1.067
AAF10521-2	266	166	103	12	25	53	10	0	0	63	10	1.078
AAF18476-1	134	60	37	18	28	39	15	0	0	54	15	1.051
NDAF17107-2	313	97	60	23	40	21	16	0	0	37	16	1.054
NDAF1813-2	263	116	72	19	35	40	6	0	0	46	6	1.077

¹Marketable Yield: size classes A1 to A3.

²Size 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 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	83	9	6	2						5	-
Peter Wilcox (B1816-5)	88	9	6	4						7	2
Soraya	88	9	6	4						8	1
Satina	79	9	9	3						8	1
Dark Red Norland	79	9	6	1						7	3
All Blue	83	9	9	1						6	3
AF7095-7	92	9	6	2						7	2
AF7114-4	92	9	6	3						9	1
AF7114-12	88	9	6	3						8	3
AF7114-15	92	9	6	2						7	1
AF7128-4	92	9	6	3						7	2
AF7129-2	92	9	6	4						8	2
AF7130-3	92	9	6	4						8	1
AF7130-6	83	9	6	6						8	2
AF7131-2	83	9	6	3						7	1
AF7140-1	67	9	6	4						7	2
AF7145-2	100	9	6	4						8	2
AF7147-3	92	9	6	6						7	2
AF7149-2	71	9	6	4						6	2
AF7153-4	100	9	6	4						7	3
AF7156-1	100	9	6	6						8	3
AF7157-7	92	9	6	4						8	2
AF7159-2	92	9	6	3						8	1
AF7162-3	88	9	6	2						8	1
AF7170-7	92	9	6	2						5	2
AF7172-1	96	9	6	2						8	3
AF7172-3	100	9	6	3						9	1
AF7173-7	88	9	9	4						7	1
AF7174-3	88	9	9	2						8	1
AF7179-6	83	9	6	4						7	3

Table 16 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF7181-3	88	9	6	2						8	2
AF7182-6	92	9	6	4						7	1
AF7183-2	88	9	6	5						8	1
COAF18053-3	88	9	9	6						7	2
AAF12219-1	100	9	6	4						6	2
AAF12227-1	71	9	9	4						6	2
NDAF17137-5	83	9	6	2						7	1
AF7137-4	83	9	6	2						6	3
AF7090-9	88	9	6	3						7	2
AF7095-2	96	9	6	2						7	3
AF7095-4	100	9	6	4						7	1
AF7095-6	92	9	6	5						7	1
AF7098-4	100	9	6	1						8	3
AF7103-6	92	9	6	2						7	2
AF7108-3	88	8	9	2						7	1
AF7111-4	92	9	9	5						7	1
AF7151-3	100	9	6	3						7	2
AF7166-1	100	9	9	3						7	1
AF7170-9dup1	100	9	6	6						6	2
AF7175-1	92	9	9	6						7	2
AF7175-2	100	9	6	4						6	2
AF7175-4	100	9	6	3						8	1
AF7182-4	88	9	6	2						8	2
COAF18042-2	83	9	6	1						9	3
AAF15338-5	83	9	6	4						9	2
NDAF17119-4	100	9	6	2						9	1
NDAF17137-7	88	9	6	2						8	1
NDAF17139-5	100	9	6	6						7	3
NDAF17153-1	100	9	6	1						8	3
NDAF1821Y-3	100	9	9	3						9	2

Table 16 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
NDAF1825Y-3	88	9	9	1						6	3
AF7093-1	83	9	6	2						8	1
AF7148-2	83	9	9	7						7	4
AF7160-2	92	9	6	1						8	1
NDAF17155-6	79	9	6	1						7	3
AF7039-2	96	9	9	3						7	2
AF7040-8	79	9	9	1						8	2
AF7041-5	96	9	6	4						8	2
AF7043-1	83	9	9	3						7	1
AF7045-1	88	9	6	2						6	2
AF7050-3	92	9	6	2						6	1
AF7055-8	92	9	9	3						7	2
AF7055-9	100	9	9	3						7	3
AF7079-4	83	8	9	4						7	2
COAF18063-7	83	9	9	4						7	2
AAF16034-8	88	9	9	2						5	1
AAF16065-1	100	9	9	4						8	1
AAF10458-3	92	9	9	6						6	3
AAF10521-2	100	9	9	2						6	1
AAF18476-1	83	4	9	8						7	3
NDAF17107-2	83	9	9	7						7	3
NDAF1813-2	100	9	9	5						7	2

¹Percent 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.

²Internal 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 2023 University of Maine Early Line Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Red LaSoda	0	0	0	19	19	0	0	0	10
Peter Wilcox (B1816-5)	0	0	0	2	2	0	0	0	0
Soraya	0	0	0	2	2	0	0	0	0
Satina	0	0	1	6	8	0	0	0	0
Dark Red Norland	0	0	0	11	11	0	0	0	0
All Blue	0	0	0	2	2	0	0	0	0
AF7095-7	0	0	0	1	1	0	0	0	0
AF7114-4	0	0	0	5	5	0	0	0	0
AF7114-12	0	0	0	13	13	0	0	0	0
AF7114-15	0	0	0	1	1	0	0	0	0
AF7128-4	0	0	0	4	4	10	0	0	0
AF7129-2	2	0	0	6	8	20	0	0	0
AF7130-3	0	0	0	9	9	0	0	0	0
AF7130-6	0	0	0	8	8	0	0	0	10
AF7131-2	0	0	1	8	9	0	0	0	0
AF7140-1	0	0	5	9	13	0	0	0	0
AF7145-2	0	0	1	10	10	0	0	0	0
AF7147-3	0	0	0	22	22	0	0	0	0
AF7149-2	0	0	0	12	12	0	0	0	0
AF7153-4	0	0	0	16	16	10	0	10	0
AF7156-1	0	0	5	8	13	0	0	0	10
AF7157-7	0	0	0	15	15	0	0	0	0
AF7159-2	0	0	6	2	8	0	0	0	0
AF7162-3	0	0	2	2	4	0	0	0	0
AF7170-7	0	1	0	2	4	20	0	0	10
AF7172-1	0	0	0	5	5	10	0	0	0
AF7172-3	0	0	0	4	4	0	0	0	0
AF7173-7	0	0	0	8	8	0	0	0	0
AF7174-3	0	0	1	4	4	0	0	0	0
AF7179-6	0	0	3	9	12	0	0	0	10

Table 17 (cont'd). External and internal defects for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
AF7181-3	0	0	0	1	1	0	0	0	0
AF7182-6	0	0	0	3	3	0	0	0	0
AF7183-2	0	1	3	0	4	0	0	0	0
COAF18053-3	0	0	1	9	10	0	0	0	0
AAF12219-1	0	0	0	10	10	0	0	0	0
AAF12227-1	0	0	0	12	12	0	0	0	0
NDAF17137-5	0	0	1	3	4	0	0	0	0
AF7137-4	0	0	0	1	1	0	0	0	0
AF7090-9	0	3	0	10	12	0	0	0	0
AF7095-2	1	0	1	0	1	0	0	0	0
AF7095-4	0	0	3	2	4	0	0	0	0
AF7095-6	0	0	0	2	2	0	0	0	0
AF7098-4	2	0	0	0	2	0	0	0	0
AF7103-6	0	0	0	3	3	0	0	0	0
AF7108-3	0	0	0	6	6	0	0	0	0
AF7111-4	0	0	3	3	6	0	0	0	0
AF7151-3	11	0	0	4	15	0	0	0	0
AF7166-1	0	0	2	6	7	0	0	0	0
AF7170-9dup1	0	0	0	4	4	0	0	0	0
AF7175-1	0	0	0	2	2	0	0	0	0
AF7175-2	0	0	0	2	2	0	0	0	0
AF7175-4	0	0	4	0	4	0	0	0	0
AF7182-4	0	0	1	5	6	10	0	0	0
COAF18042-2	0	0	0	1	1	0	0	0	0
AAF15338-5	0	0	0	11	11	0	0	0	0
NDAF17119-4	0	0	0	9	9	0	0	0	0
NDAF17137-7	0	0	0	8	8	0	0	0	0
NDAF17139-5	0	0	6	16	22	0	0	0	0
NDAF17153-1	0	0	0	1	1	0	0	0	0
NDAF1821Y-3	0	0	1	12	13	0	0	0	0

Table 17 (cont'd). External and internal defects for the 2023 University of Maine Early Line Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
NDAF1825Y-3	0	0	0	15	15	0	0	0	0
AF7093-1	0	0	2	4	7	0	0	0	0
AF7148-2	0	0	0	27	27	0	0	0	0
AF7160-2	0	0	4	0	4	0	0	0	0
NDAF17155-6	1	0	0	1	2	0	0	0	0
AF7039-2	0	0	0	4	4	0	0	0	0
AF7040-8	0	0	3	9	12	0	0	0	0
AF7041-5	0	0	1	9	10	0	0	0	0
AF7043-1	0	0	2	3	6	0	0	0	0
AF7045-1	0	0	1	12	13	0	0	0	0
AF7050-3	0	0	3	3	5	0	0	0	0
AF7055-8	0	0	1	7	8	0	0	0	0
AF7055-9	0	0	0	3	3	0	0	0	0
AF7079-4	0	0	0	5	5	0	0	0	0
COAF18063-7	0	0	1	1	2	0	0	0	0
AAF16034-8	0	0	0	9	9	0	0	0	0
AAF16065-1	6	0	0	0	6	0	0	0	0
AAF10458-3	0	0	1	21	22	0	0	10	0
AAF10521-2	0	0	1	0	1	0	0	0	0
AAF18476-1	0	0	0	18	18	0	0	0	0
NDAF17107-2	0	0	0	16	16	0	0	0	0
NDAF1813-2	0	0	1	3	3	0	0	0	0

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

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

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

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 9, 2023
Vine Kill Date	May 2, 2023
Harvest Date	May 12, 2023
Season Length	82 days planting to vine kill; 92 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	40
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	46 DAP
Highest Total Yield	Soraya (562 cwt/acre or 63.0 T/ha)
Highest Marketable Yield	Soraya (392 cwt/acre or 43.9 T/ha)
Best Appearance Rating	AF7307-1, COAF19182-2, AAF18386-3 (9, excellent)

Table 18. Production statistics for the 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-82 days</u>												
Red LaSoda	255	178	100	4	14	52	30	0	0	81	30	1.058
Atlantic	314	205	115	5	7	37	51	0	0	88	51	1.085
Peter Wilcox (B1816-5)	401	229	129	11	27	46	16	0	0	62	16	1.070
Soraya	562	392	221	4	14	32	50	0	0	82	50	1.055
Satina	508	331	186	4	4	36	56	0	0	92	56	1.058
Snowden	258	162	91	10	27	51	12	0	0	63	12	1.080
Dark Red Norland	268	141	79	15	32	53	0	0	0	53	0	1.063
All Blue	276	49	28	42	38	19	0	0	0	19	0	1.073
Chieftain	261	207	117	5	16	61	19	0	0	79	19	1.066
AF7280-3	203	147	83	12	11	52	24	0	0	76	24	1.085
AF7303-4	265	206	116	4	12	49	34	0	0	84	34	1.072
AF7307-1	329	194	109	14	26	49	10	0	0	60	10	1.058
AF7307-2	411	221	124	12	29	51	8	0	0	59	8	1.067
AF7307-4	283	141	79	5	20	38	37	0	0	75	37	1.053
AF7307-8	367	199	112	6	13	56	24	0	0	81	24	1.056
AF7319-3	342	288	162	3	7	51	39	0	0	90	39	1.056
AF7319-5	325	188	106	19	13	37	30	0	0	67	30	1.063
AF7325-2	213	45	26	20	41	39	0	0	0	39	0	1.062
AF7328-2	315	147	83	4	6	43	46	0	0	90	46	1.061
AF7341-3	305	98	55	12	38	26	23	0	0	49	23	1.067
AF7346-2	267	22	12	60	32	8	0	0	0	8	0	1.099
COAF19173-1	215	125	70	8	34	38	20	0	0	58	20	1.063
COAF19180-1	174	34	19	40	35	25	0	0	0	25	0	1.055
COAF19182-2	204	105	59	18	23	26	33	0	0	59	33	1.054
COAF19183-1	199	63	35	29	36	35	0	0	0	35	0	1.076
COAF19183-5	124	7	4	64	27	8	0	0	0	8	0	.
COAF19202-4	254	69	39	40	26	33	0	0	0	33	0	1.060
AAF13148-1	297	192	108	9	21	52	18	0	0	70	18	1.060
AAF13156-1	375	239	134	8	21	53	18	0	0	71	18	1.063
AAF15344-1	378	190	107	16	21	26	37	0	0	63	37	1.069

Table 18 (cont'd). Production statistics for the 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AAF15348-1	312	239	134	7	12	34	47	0	0	81	47	1.066
AAF18386-2	399	294	166	8	11	25	56	0	0	81	56	1.065
AAF18386-3	362	250	141	5	19	24	52	0	0	76	52	1.068
NDAF1842B-1	398	246	139	7	15	21	57	0	0	78	57	1.054
NDAF1858Y-2	383	213	120	17	14	47	21	0	0	69	21	1.045
NDAF1871-2	217	6	3	57	40	3	0	0	0	3	0	.
NDAF1913-4	181	36	20	40	39	10	11	0	0	21	11	1.065
NDAF1913-5	92	15	8	47	37	16	0	0	0	16	0	.
NDAF1915-1	192	63	35	16	43	32	10	0	0	41	10	1.039
NDAF1915-2	277	178	100	3	17	46	34	0	0	80	34	1.056
NDAF1938-3	132	63	35	16	34	36	14	0	0	50	14	1.061
NDAF209-1	304	199	112	5	26	51	18	0	0	69	18	1.049
NDAF209-3	212	94	53	15	39	46	0	0	0	46	0	1.071
NDAF209-7	250	167	94	9	23	38	30	0	0	68	30	1.052
NDAF2010-2	224	135	76	8	21	47	24	0	0	71	24	1.061
NDAF2010-3	127	17	10	22	58	21	0	0	0	21	0	1.077
AAF18389-1	285	183	103	7	16	48	29	0	0	77	29	1.071
AAF18389-2	274	141	79	11	31	48	10	0	0	58	10	1.038
AAF18389-3	333	221	124	3	19	56	21	0	0	78	21	1.063

¹Marketable Yield: size classes A1 to A3.

²Size 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 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	100	9	6	1	1	2		3		7	-
Atlantic	100	9	6	5	1	7		3		7	3
Peter Wilcox (B1816-5)	100	9	6	4	3	1		3		6	3
Soraya	100	9	6	6	4	7		4		8	3
Satina	88	9	6	4	3	7		3		7	2
Snowden	88	9	9	3	1	8		2		6	1
Dark Red Norland	100	9	6	3	1	2		3		6	2
All Blue	100	8	6	3	9	1		6		5	3
Chieftain	88	8	9	6	3	8		3		7	2
AF7280-3	88	9	6	4	3	8		2		6	2
AF7303-4	88	9	9	2	1	1		1		5	1
AF7307-1	100	9	6	1	1	2		3		9	1
AF7307-2	100	9	6	3	1	3		2		6	1
AF7307-4	100	9	9	6	1	2		2		6	3
AF7307-8	100	9	9	5	1	2		3		7	3
AF7319-3	100	9	9	3	1	2		4		7	3
AF7319-5	88	9	6	2	1	2		2		7	2
AF7325-2	100	8	9	1	1	2		1		8	4
AF7328-2	88	9	9	6	3	2		3		7	3
AF7341-3	100	9	6	5	3	8		3		5	4
AF7346-2	100	9	6	2	1	3		3		5	3
COAF19173-1	100	9	6	2	1	2		2		8	2
COAF19180-1	88	9	6	1	1	2		3		7	4
COAF19182-2	100	9	6	2	1	2		1		9	3
COAF19183-1	88	8	9	7	1	2		3		7	3
COAF19183-5	88	9	6	2	3	2		4		6	4
COAF19202-4	100	9	9	2	1	2		3		7	3
AAF13148-1	88	9	6	4	1	3		3		7	1
AAF13156-1	100	9	6	7	3	7		3		8	2
AAF15344-1	100	9	6	4	3	2		2		7	2

Table 19 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AAF15348-1	88	9	6	4	3	8		2		6	1
AAF18386-2	100	9	6	6	1	2		1		8	1
AAF18386-3	100	9	6	4	1	2		2		9	1
NDAF1842B-1	100	9	6	3	1	2		3		6	2
NDAF1858Y-2	100	9	6	5	1	2		3		8	2
NDAF1871-2	100	9	6	1	4	3		6		7	3
NDAF1913-4	100	8	6	1	1	2		3		6	3
NDAF1913-5	100	5	9	2	1	2		3		7	3
NDAF1915-1	100	6	9	3	1	2		1		6	4
NDAF1915-2	100	7	9	7	1	2		2		7	2
NDAF1938-3	100	7	9	1	1	2		3		6	3
NDAF209-1	100	9	9	3	1	2		5		7	1
NDAF209-3	100	8	9	2	1	2		3		4	3
NDAF209-7	88	9	6	3	1	2		6		5	3
NDAF2010-2	100	6	9	6	1	2		2		7	2
NDAF2010-3	100	7	9	3	1	2		2		5	4
AAF18389-1	100	8	9	4	1	2		2		8	2
AAF18389-2	100	9	6	4	1	2		3		7	2
AAF18389-3	88	9	6	2	1	2		1		7	2

¹Percent 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.

²Internal 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 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Red LaSoda	0	4	0	11	14	0	0	0	0
Atlantic	0	5	0	21	26	0	0	0	10
Peter Wilcox (B1816-5)	0	0	0	7	7	0	0	10	0
Soraya	0	0	0	15	15	0	0	0	10
Satina	0	0	0	29	29	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	8	8	0	0	0	0
Chieftain	0	0	0	0	0	0	0	0	10
AF7280-3	0	0	0	5	5	0	0	0	0
AF7303-4	0	7	0	0	7	0	0	0	0
AF7307-1	0	0	0	1	1	0	0	0	0
AF7307-2	0	0	0	9	9	0	0	0	0
AF7307-4	0	0	0	33	33	0	0	0	0
AF7307-8	4	0	0	29	33	0	0	0	0
AF7319-3	0	0	0	7	7	0	0	10	0
AF7319-5	0	0	0	14	14	0	0	0	0
AF7325-2	0	0	0	45	45	0	0	0	0
AF7328-2	0	0	0	48	48	0	0	0	0
AF7341-3	0	0	0	35	35	0	0	0	0
AF7346-2	0	0	0	0	0	0	0	0	0
COAF19173-1	0	0	0	0	0	0	0	0	0
COAF19180-1	0	0	0	20	20	0	0	0	0
COAF19182-2	0	0	0	13	13	0	0	0	0
COAF19183-1	0	0	0	11	11	0	0	0	0
COAF19183-5	0	0	0	29	29	0	0	0	0
COAF19202-4	0	0	0	19	19	0	0	0	0
AAF13148-1	0	0	0	8	8	0	0	0	0
AAF13156-1	0	10	0	0	10	0	0	0	0
AAF15344-1	0	0	0	20	20	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2023 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
AAF15348-1	0	0	0	5	5	0	0	0	0
AAF18386-2	0	0	0	9	9	0	0	0	0
AAF18386-3	0	0	0	9	9	0	0	0	0
NDAF1842B-1	0	0	5	16	21	0	0	0	0
NDAF1858Y-2	0	0	2	17	19	0	0	0	0
NDAF1871-2	0	0	0	0	0	0	0	0	0
NDAF1913-4	0	0	0	7	7	0	0	0	0
NDAF1913-5	0	0	0	0	0	0	0	0	0
NDAF1915-1	0	0	0	21	21	0	0	0	0
NDAF1915-2	0	0	0	20	20	0	0	0	0
NDAF1938-3	0	0	0	6	6	0	0	0	0
NDAF209-1	0	0	0	5	5	0	0	0	0
NDAF209-3	0	0	0	3	3	0	0	0	0
NDAF209-7	0	0	0	2	2	30	0	0	0
NDAF2010-2	0	5	0	10	15	0	0	0	0
NDAF2010-3	30	0	0	4	35	0	0	0	0
AAF18389-1	16	0	0	0	16	0	0	0	0
AAF18389-2	4	0	0	7	11	0	0	0	0
AAF18389-3	5	0	0	9	15	0	0	0	0

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

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

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

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2023
Vine Kill Date	N/A
Harvest Date	May 10, 2023
Season Length	92 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	42
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	5 ft 4 in (1.6 m)

Production Statistics

Early Vigor Ratings	44 DAP
Highest Total Yield	NDAF1852-2 (644 cwt/acre or 72.2 T/ha)
Highest Marketable Yield	Soraya (499 cwt/acre or 55.9 T/ha)
Best Appearance Rating	AF7333-7, AF7345-2 (9, excellent)

Table 21. Production statistics for the 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-92 days</u>												
Red LaSoda	203	103	67	8	22	31	39	0	0	70	39	1.074
Atlantic	289	154	100	28	13	34	26	0	0	60	26	1.066
Peter Wilcox (B1816-5)	397	202	131	17	23	41	19	0	0	60	19	1.059
Soraya	632	499	323	4	12	35	49	0	0	83	49	1.050
Satina	407	330	213	4	8	42	45	0	0	88	45	1.071
Snowden	218	126	82	15	25	45	14	0	0	59	14	1.069
Dark Red Norland	236	99	64	34	16	38	12	0	0	49	12	1.063
All Blue	221	36	23	38	40	21	0	0	0	21	0	1.066
Katahdin	329	248	160	9	14	41	36	0	0	77	36	1.073
AF7267-5	391	338	219	2	5	51	41	0	0	92	41	1.074
AF7270-1	136	93	60	6	12	29	53	0	0	82	53	1.071
AF7272-3	274	170	110	12	22	34	31	0	0	65	31	1.079
AF7274-3	256	195	126	1	18	59	23	0	0	81	23	1.067
AF7276-1	237	142	92	7	12	16	65	0	0	81	65	1.073
AF7278-2	133	94	61	4	10	38	48	0	0	87	48	1.065
AF7281-8	395	311	202	3	9	30	58	0	0	89	58	1.069
AF7290-6	291	197	128	4	18	41	37	0	0	77	37	1.068
AF7296-4	405	277	179	6	4	42	48	0	0	90	48	1.066
AF7296-7	323	224	145	3	8	21	68	0	0	89	68	1.066
AF7300-2	292	191	124	4	9	15	60	12	0	87	73	1.073
AF7301-3	324	206	133	4	16	18	61	0	0	79	61	1.073
AF7301-7	100	76	49	2	3	26	69	0	0	95	69	1.085
AF7302-1	373	255	165	11	13	14	63	0	0	76	63	1.071
AF7302-6	370	237	153	6	6	35	45	8	0	88	53	1.067
AF7323-1	327	226	146	8	15	42	35	0	0	77	35	1.065
AF7330-4	435	300	194	9	19	35	37	0	0	72	37	1.065
AF7333-4	298	203	132	8	12	28	52	0	0	80	52	1.067
AF7333-7	388	293	190	3	11	37	48	0	0	86	48	1.086
AF7333-8	238	165	107	10	10	38	42	0	0	80	42	1.069
AF7333-10	268	165	107	6	14	24	56	0	0	80	56	1.071

Table 21 (cont'd). Production statistics for the 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AF7333-16	311	181	117	8	16	39	37	0	0	76	37	1.081
AF7338-1	285	173	112	2	3	41	54	0	0	95	54	1.065
AF7338-5	238	125	81	7	10	43	40	0	0	84	40	1.066
AF7345-2	288	53	34	39	42	19	0	0	0	19	0	1.060
COAF19115-1	211	83	54	26	32	34	9	0	0	43	9	1.068
AAF18371-2	366	222	144	13	17	25	36	10	0	70	45	1.062
AAF18379-3	410	145	94	25	37	30	8	0	0	37	8	1.069
AAF18515-2	301	151	98	10	26	49	16	0	0	64	16	1.063
NDAF1844Y-1	330	207	134	6	10	23	60	0	0	84	60	1.077
NDAF1844Y-5	288	185	120	9	16	32	43	0	0	74	43	1.068
NDAF1847-1	502	358	232	3	13	15	68	0	0	83	68	1.065
NDAF1852-2	644	408	264	8	23	50	19	0	0	69	19	1.072
NDAF1925-1	229	151	98	12	8	23	58	0	0	80	58	1.077
NDAF1931-5	208	140	90	3	8	20	69	0	0	89	69	1.071
AF7268-1	278	173	112	8	12	38	42	0	0	80	42	1.073
AF7283-1	343	190	123	12	16	44	28	0	0	72	28	1.071
AF7288-2	278	137	89	8	25	36	31	0	0	67	31	1.070
AF7294-2	147	72	47	27	21	25	26	0	0	51	26	1.070
AF7295-1	457	224	145	7	29	40	25	0	0	64	25	1.076
AF7298-1	182	119	77	10	20	51	19	0	0	70	19	1.083
AF7322-1	280	167	108	7	17	30	46	0	0	76	46	1.071

¹Marketable Yield: size classes A1 to A3.

²Size 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 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	100	9	6	4						7	3
Atlantic	100	9	6	6						7	-
Peter Wilcox (B1816-5)	100	9	9	5						8	2
Soraya	100	9	9	6						8	1
Satina	100	9	9	6						6	1
Snowden	100	9	9	6						6	2
Dark Red Norland	100	9	6	4						7	3
All Blue	100	9	9	2						5	4
Katahdin	100	9	9	7						5	1
AF7267-5	100	8	9	7						5	1
AF7270-1	100	9	9	7						6	3
AF7272-3	100	9	9	7						7	1
AF7274-3	100	7	9	6						7	1
AF7276-1	100	8	9	7						8	2
AF7278-2	88	8	9	7						6	4
AF7281-8	100	9	9	6						7	2
AF7290-6	88	9	9	5						8	2
AF7296-4	88	9	6	4						6	2
AF7296-7	88	9	9	7						7	3
AF7300-2	88	9	6	7						7	2
AF7301-3	100	9	9	7						6	2
AF7301-7	88	9	9	7						7	3
AF7302-1	100	9	9	7						6	2
AF7302-6	100	9	9	6						8	2
AF7323-1	100	9	9	6						6	2
AF7330-4	100	8	9	7						8	1
AF7333-4	100	9	9	6						6	2
AF7333-7	88	9	9	4						9	2
AF7333-8	100	9	9	6						7	2
AF7333-10	100	9	9	6						7	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF7333-16	75	9	6	4						7	2
AF7338-1	88	9	9	5						6	3
AF7338-5	88	6	9	6						7	3
AF7345-2	100	9	9	4						9	3
COAF19115-1	100	9	6	2						7	3
AAF18371-2	100	9	9	6						7	2
AAF18379-3	100	9	9	4						8	1
AAF18515-2	100	7	9	7						7	2
NDAF1844Y-1	100	9	9	5						5	3
NDAF1844Y-5	100	9	9	7						7	2
NDAF1847-1	88	9	6	4						6	2
NDAF1852-2	100	9	6	5						5	1
NDAF1925-1	75	9	9	6						5	2
NDAF1931-5	88	9	9	7						7	2
AF7268-1	88	6	9	7						7	2
AF7283-1	88	8	9	6						8	2
AF7288-2	75	8	9	7						7	2
AF7294-2	100	8	9	6						7	3
AF7295-1	100	9	9	6						7	2
AF7298-1	100	9	9	6						7	2
AF7322-1	88	9	9	5						7	2

¹Percent 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.

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

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

Table 23. External and internal defects for the 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Red LaSoda	0	0	0	27	27	0	0	0	0
Atlantic	0	0	0	11	11	0	0	0	0
Peter Wilcox (B1816-5)	0	8	0	7	15	0	0	0	0
Soraya	0	0	2	3	5	0	0	0	0
Satina	0	0	1	6	7	0	0	0	0
Snowden	0	0	0	2	2	0	0	0	0
Dark Red Norland	4	0	0	11	15	0	0	0	0
All Blue	0	25	0	0	25	0	0	0	0
Katahdin	0	0	2	0	2	0	0	0	0
AF7267-5	0	0	2	4	6	0	0	0	0
AF7270-1	0	0	0	16	16	0	0	0	0
AF7272-3	3	0	0	2	5	0	0	0	0
AF7274-3	0	0	0	6	6	0	0	0	0
AF7276-1	0	9	2	16	26	0	0	0	0
AF7278-2	0	0	0	18	18	0	0	10	0
AF7281-8	5	0	6	0	11	0	0	0	0
AF7290-6	0	0	7	6	12	0	0	0	0
AF7296-4	0	0	9	15	24	0	0	0	0
AF7296-7	0	0	4	18	22	60	0	0	0
AF7300-2	0	0	19	6	25	0	0	0	0
AF7301-3	14	0	0	6	20	0	0	0	0
AF7301-7	0	0	10	9	19	0	0	0	0
AF7302-1	5	0	0	5	10	0	0	0	0
AF7302-6	0	0	9	18	27	0	0	0	0
AF7323-1	0	0	8	2	10	0	0	0	0
AF7330-4	0	0	3	0	3	0	0	0	0
AF7333-4	0	0	3	11	15	0	0	0	0
AF7333-7	0	0	8	4	12	0	0	0	0
AF7333-8	0	0	13	0	13	0	0	0	0
AF7333-10	0	0	11	12	23	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2023 University of Maine Early Generation Round Whites Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
AF7333-16	0	0	11	12	23	0	0	0	0
AF7338-1	0	0	25	12	36	0	0	0	0
AF7338-5	0	0	5	33	37	0	0	0	0
AF7345-2	0	0	2	0	2	0	0	0	0
COAF19115-1	0	3	0	5	8	0	0	0	0
AAF18371-2	4	0	0	9	13	0	0	0	0
AAF18379-3	0	0	2	4	6	0	0	0	0
AAF18515-2	0	0	9	13	22	0	0	0	0
NDAF1844Y-1	0	0	15	11	25	0	0	0	10
NDAF1844Y-5	0	0	0	13	13	0	0	0	0
NDAF1847-1	0	0	10	4	14	0	0	0	0
NDAF1852-2	0	0	5	3	8	0	0	0	0
NDAF1925-1	0	0	7	11	18	0	0	0	0
NDAF1931-5	0	0	0	24	24	0	0	0	0
AF7268-1	0	0	0	22	22	0	0	0	0
AF7283-1	0	0	12	10	23	0	0	0	0
AF7288-2	0	0	0	26	26	0	0	0	0
AF7294-2	0	0	0	4	4	0	0	0	0
AF7295-1	0	0	3	21	24	0	0	0	0
AF7298-1	0	0	0	6	6	0	0	0	0
AF7322-1	0	0	0	22	22	0	0	0	0

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

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

Chapter 9. Potatoes USA National Chip Processing Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2023
Vine Kill Date	N/A
Harvest Date	May 11, 2023
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	3 (Standard: Atlantic)
Number of Clones	188
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	44 DAP
Highest Total Yield	MSGG302-1 (477 cwt/acre or 53.5 T/ha)
Highest Marketable Yield	MSGG302-1 (374 cwt/acre or 41.9 T/ha)
Highest Specific Gravity	B3403-6 (1.092)

Table 24. Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-93 days</u>												
Atlantic	323	243	100	5	6	25	64	0	0	89	64	1.076
Lamoka	255	154	63	10	18	48	23	0	0	72	23	1.064
Snowden	320	241	99	5	12	31	52	0	0	83	52	1.072
<u>Tier 1 = 1 rep</u>												
AC15304-4W	386	241	99	7	16	31	45	0	0	76	45	1.068
COA17197-3C	273	142	58	17	25	23	36	0	0	59	36	1.068
NDA14138AB-4C	276	173	71	7	7	25	61	0	0	86	61	1.067
AF6867-1	130	60	25	10	32	27	31	0	0	57	31	1.090
AF6872-11	65	22	9	35	30	34	0	0	0	34	0	1.060
AF6876-18	230	157	65	7	21	47	25	0	0	72	25	1.065
AF6878-15	222	203	83	2	4	37	57	0	0	94	57	1.076
AF6878-22	268	184	76	3	10	35	52	0	0	87	52	1.086
AF6880-9	303	176	72	6	13	35	46	0	0	82	46	1.067
AF6883-4	153	51	21	23	38	38	0	0	0	38	0	1.084
AF6883-8	242	150	62	0	35	47	18	0	0	65	18	1.078
AF6883-15	194	123	51	9	19	46	26	0	0	72	26	1.072
AF6886-3	250	229	94	4	4	31	60	0	0	92	60	1.065
AF6892-6	302	213	88	6	20	34	41	0	0	74	41	1.079
AF6894-12	304	205	84	4	9	29	58	0	0	87	58	1.071
AF6896-1	271	183	75	8	11	35	46	0	0	81	46	1.071
AF6898-1	350	255	105	7	15	52	26	0	0	78	26	1.077
AF6901-8	263	197	81	5	7	47	41	0	0	88	41	1.065
AF6907-15	225	159	66	4	11	47	38	0	0	85	38	1.076
AF6911-4	298	189	78	6	20	31	42	0	0	73	42	1.068
AF6978-1	417	260	107	10	21	29	40	0	0	69	40	1.069
AF6979-3	117	67	27	9	31	14	46	0	0	60	46	1.069
AF6980-1	280	103	42	28	29	36	7	0	0	43	7	1.070
NDAF14188-5	308	227	93	9	15	29	47	0	0	76	47	1.070
B3379-2	257	157	64	11	20	45	24	0	0	69	24	1.082

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
B3403-6	379	184	75	22	28	34	15	0	0	49	15	1.092
B3451-8	248	142	58	17	22	25	36	0	0	61	36	1.074
B3471-1	258	151	62	16	16	32	36	0	0	68	36	1.074
B3480-15	173	85	35	12	16	46	26	0	0	72	26	1.074
BNC811-15	230	176	72	8	12	20	60	0	0	80	60	1.075
BNC816-3	169	48	20	15	40	45	0	0	0	45	0	1.073
BNC973-7	201	117	48	6	18	25	51	0	0	76	51	1.063
BNC974-1	96	56	23	13	24	45	17	0	0	62	17	1.067
MSFF035-2	139	82	34	13	9	25	53	0	0	78	53	1.083
MSGG169-2	130	65	27	10	29	41	19	0	0	61	19	1.076
MSGG190-1	283	199	82	8	14	48	30	0	0	78	30	1.057
MSGG190-4	454	341	140	7	16	40	38	0	0	77	38	1.070
MSGG194-3	414	322	132	7	10	47	37	0	0	84	37	1.062
MSGG195-1	316	244	100	9	11	47	33	0	0	80	33	1.068
MSGG212-4	108	54	22	11	30	37	22	0	0	59	22	1.082
MSGG221-3	454	349	143	6	13	34	47	0	0	81	47	1.075
MSGG263-1	294	211	87	7	11	31	51	0	0	82	51	1.076
MSGG276-4	246	122	50	24	24	48	4	0	0	52	4	1.070
MSGG282-20	238	169	70	3	13	20	64	0	0	84	64	1.070
MSGG302-1	477	374	154	3	10	19	69	0	0	88	69	1.064
MSGG349-3	228	163	67	10	11	36	43	0	0	79	43	1.077
MSGG365-1	166	98	40	4	21	32	43	0	0	75	43	1.058
MSGG384-2	247	169	70	14	12	39	35	0	0	74	35	1.063
MSGG409-2	334	208	85	13	21	28	37	0	0	65	37	1.075
MSGG409-3	275	148	61	15	19	50	17	0	0	67	17	1.079
MSGG426-2	252	150	61	15	17	25	43	0	0	68	43	1.072
MN18AF6643-013	264	147	60	15	16	37	32	0	0	69	32	1.065
MN18AF6658-005	230	142	59	11	7	42	39	0	0	82	39	1.052
MN18W17037-034	285	188	77	8	9	16	67	0	0	83	67	1.062
MN18W17043-006	425	295	121	13	10	36	41	0	0	77	41	1.070

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
MN18W17052-004	136	18	7	59	25	16	0	0	0	16	0	1.089
MN19TX18054-002	196	99	41	6	8	44	42	0	0	86	42	1.064
MN19TX18093-001	272	176	72	8	13	59	20	0	0	78	20	1.062
MN19TX18304-001	349	193	79	8	31	45	16	0	0	61	16	1.076
NC958-B	362	233	96	9	9	19	63	0	0	82	63	1.071
NC1030-16	291	185	76	8	13	32	46	0	0	79	46	1.071
NC1030-49	256	153	63	8	18	29	45	0	0	74	45	1.072
NC1030-60	336	257	106	8	12	18	61	0	0	80	61	1.069
NC1030-77	278	197	81	3	17	33	46	0	0	80	46	1.067
NC1030-95	268	162	67	11	15	20	53	0	0	74	53	1.063
NC1036-05	208	141	58	0	21	46	33	0	0	79	33	1.073
NC1036-07	276	212	87	2	4	19	75	0	0	93	75	1.070
NC1036-13	275	185	76	7	16	45	31	0	0	77	31	1.071
NC1038-03	312	235	96	8	11	32	49	0	0	81	49	1.065
NC1039-20	412	317	130	2	9	27	62	0	0	89	62	1.069
NC1039-24	269	171	70	5	15	31	49	0	0	80	49	1.069
NC1042-05	148	87	36	11	21	30	37	0	0	68	37	1.079
NC1042-19	254	186	77	4	11	27	58	0	0	85	58	1.077
NC1043-07	306	231	95	5	13	34	47	0	0	82	47	1.057
NC1046-03	356	275	113	4	8	20	68	0	0	88	68	1.070
NC1048-12	407	321	132	6	11	12	71	0	0	83	71	1.065
NC1048-18	149	79	32	18	22	31	30	0	0	61	30	1.073
NC1050-06	212	137	56	6	21	28	45	0	0	73	45	1.067
NC1051-08	238	195	80	6	8	40	46	0	0	86	46	1.061
NC1060-05	260	162	67	10	15	36	39	0	0	75	39	1.068
NYU15-8	400	252	104	11	18	25	47	0	0	71	47	1.072
NYU18-2	315	199	82	12	11	45	31	0	0	77	31	1.073
NYU20-10	342	214	88	10	13	42	35	0	0	77	35	1.075
NYU34-3	443	327	134	4	17	55	24	0	0	78	24	1.072
NYU34-5	342	250	103	8	6	18	67	0	0	86	67	1.066

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
NYU34-6	266	171	70	5	13	37	45	0	0	82	45	1.075
NYU35-5	363	227	93	10	11	32	47	0	0	79	47	1.067
NYU44-1	214	116	48	19	20	20	41	0	0	61	41	1.070
NYU44-7	244	127	52	20	22	38	20	0	0	58	20	1.072
AOR10902-2	196	27	11	54	31	15	0	0	0	15	0	1.075
AOR16149-4	342	173	71	15	25	27	33	0	0	60	33	1.059
AOR18351-2	355	127	52	26	34	29	12	0	0	41	12	1.072
AOR18355-2	233	143	59	13	7	35	45	0	0	80	45	1.084
TX19009-2W	243	152	62	15	19	42	23	0	0	66	23	1.070
TX19411-4W	285	137	56	18	26	27	29	0	0	56	29	1.066
W19009-15	374	230	94	12	21	34	32	0	0	67	32	1.071
W19009-22	292	191	78	6	11	13	70	0	0	83	70	1.074
W19009-26	313	137	56	5	8	21	66	0	0	88	66	1.071
W19012-3	247	153	63	9	11	42	37	0	0	79	37	1.077
W19020-20	362	274	112	10	12	22	56	0	0	79	56	1.074
W19022-9	187	122	50	10	12	21	57	0	0	78	57	1.071
W19023-24	326	193	79	17	21	28	34	0	0	61	34	1.080
W19024-15	263	148	61	20	15	41	24	0	0	65	24	1.079
W19024-20	95	25	10	35	39	23	4	0	0	27	4	1.057
W19024-29	358	250	103	9	17	43	31	0	0	74	31	1.067
W19026-12	266	101	41	32	27	23	18	0	0	41	18	1.074
W19026-21	330	231	95	8	15	34	43	0	0	77	43	1.075
W19027-51	407	291	120	10	10	33	46	0	0	79	46	1.075
W19028-2	305	157	65	17	15	26	42	0	0	68	42	1.070
W19029-14	403	250	103	11	22	55	12	0	0	67	12	1.078
W19031-1	408	251	103	12	12	45	31	0	0	76	31	1.079
W19031-8	319	212	87	9	19	34	38	0	0	72	38	1.075
W19031-14	171	56	23	21	37	35	7	0	0	42	7	1.066

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
Tier 2 = 2 reps												
AC13125-4W	281	143	59	22	18	29	32	0	0	60	32	1.068
AC13125-5W	385	282	116	6	14	29	52	0	0	80	52	1.064
MSAA217-3	246	184	76	8	6	15	71	0	0	86	71	1.074
MSAFB635-15	342	232	95	8	16	34	42	0	0	76	42	1.079
MSBB626-11	375	303	124	6	10	17	66	0	0	83	66	1.062
MSZ242-13	274	185	76	6	11	24	58	0	0	83	58	1.077
NY163	250	161	66	10	21	39	29	0	0	68	29	1.075
A13125-3C	254	143	59	11	20	27	42	0	0	69	42	1.065
A16150-1C	212	118	49	16	24	22	38	0	0	60	38	1.069
AF6165-9	301	216	89	8	13	47	31	0	0	78	31	1.080
AF6200-4	337	220	90	10	15	36	38	0	0	74	38	1.082
AF6200-7	165	124	51	10	13	35	43	0	0	78	43	1.078
AF6206-3	420	274	113	8	18	37	37	0	0	75	37	1.076
AF6206-5	336	225	92	3	16	51	29	0	0	81	29	1.075
AF6526-7	233	147	61	11	20	19	50	0	0	69	50	1.086
AF6552-2	360	211	87	11	23	34	32	0	0	66	32	1.069
AF6555-2	310	198	81	9	12	21	58	0	0	78	58	1.070
AF6565-8	361	230	95	9	23	48	21	0	0	69	21	1.070
AF6601-2	322	208	86	8	18	28	47	0	0	75	47	1.076
AF6652-3	372	237	97	7	17	39	37	0	0	76	37	1.064
AF6655-1	281	134	55	16	30	33	21	0	0	54	21	1.074
AF6669-10	315	194	80	10	21	28	42	0	0	70	42	1.072
AF6671-10	309	238	98	7	4	22	67	0	0	88	67	1.076
AF6675-1	225	126	52	17	25	28	29	0	0	58	29	1.072
WAF16107-2	185	82	34	16	24	37	23	0	0	60	23	1.075
WAF17045-2	281	178	73	13	15	30	42	0	0	72	42	1.076
B3296-3	272	197	81	8	9	23	59	0	0	82	59	1.076
B3379-6	287	193	79	7	20	21	51	0	0	72	51	1.079
BNC549-1	252	119	49	22	21	39	18	0	0	57	18	1.072
BNC726-5	276	145	60	15	23	34	28	0	0	63	28	1.082

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
BNC742-2	238	160	66	6	13	28	53	0	0	81	53	1.070
MSAA252-7	319	223	92	4	9	24	63	0	0	87	63	1.070
MSAA254-4	238	190	78	3	6	15	75	0	0	91	75	1.065
MSDD244-05	223	136	56	7	8	34	52	0	0	86	52	1.068
MSDD247-07	251	141	58	15	20	38	27	0	0	65	27	1.090
MSDD247-11	334	212	87	12	13	26	48	0	0	75	48	1.088
MSDD372-15	245	190	78	4	7	22	67	0	0	89	67	1.070
MSDD376-4	295	236	97	5	7	24	62	2	0	88	64	1.078
MSEE016-10	235	102	42	22	31	33	14	0	0	47	14	1.078
MSEE031-3	225	155	63	7	18	33	42	0	0	75	42	1.076
MSEE035-4	283	167	68	13	23	26	38	0	0	64	38	1.070
MSEE157-1	228	121	50	17	22	31	31	0	0	62	31	1.062
MSEE182-3	294	165	68	14	22	41	23	0	0	64	23	1.072
MSEE207-2	296	197	81	8	18	29	44	0	0	74	44	1.065
MSFF007-2	292	190	78	8	21	41	29	0	0	71	29	1.069
MSFF037-17	335	174	72	16	26	44	13	0	0	57	13	1.084
MSFF038-3	331	218	90	6	15	43	36	0	0	79	36	1.070
MN18W17037-033	308	223	92	5	12	30	53	0	0	82	53	1.063
NC821-30	344	201	83	15	21	37	27	0	0	64	27	1.077
NC821-41	367	245	101	8	16	32	44	0	0	76	44	1.067
NCB3404-A	351	203	83	10	27	30	33	0	0	62	33	1.069
NY173	334	157	65	15	31	32	22	0	0	54	22	1.070
NY175	395	264	108	7	20	41	33	0	0	74	33	1.068
NY179	268	172	70	9	20	42	29	0	0	72	29	1.073
NY180	317	230	95	5	11	67	18	0	0	85	18	1.074
NY181	365	194	80	14	27	37	21	0	0	59	21	1.078
NYT7-7	236	173	71	11	15	66	9	0	0	75	9	1.072
NYT11-3	253	131	54	11	24	44	22	0	0	65	22	1.077
NYT19-3	275	201	82	7	11	34	48	0	0	82	48	1.068
NYT34-1	239	70	29	28	38	17	17	0	0	34	17	1.078

Table 24 (cont'd). Production statistics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AOR15304-7	354	216	89	14	20	29	37	0	0	66	37	1.068
AOR16159-4	345	234	96	11	17	22	51	0	0	72	51	1.073
AOR16164-1	251	149	61	10	17	27	46	0	0	73	46	1.070
COOR17160-3	250	140	57	6	21	43	30	0	0	72	30	1.060
TX18042-1W	206	82	34	27	31	25	17	0	0	42	17	1.075
TX18170-4W	241	107	44	22	30	31	17	0	0	48	17	1.073
W17AF6670-1	270	189	78	8	15	31	47	0	0	78	47	1.076
W17039-7	328	191	79	16	20	55	9	0	0	63	9	1.073
W17039-31	325	172	71	19	23	36	22	0	0	58	22	1.059
W17043-37	323	223	92	10	16	39	35	0	0	74	35	1.078
W17049-10	269	186	76	5	15	29	51	0	0	80	51	1.084
W17060-9	394	213	88	16	22	39	23	0	0	62	23	1.074
W17065-11	368	248	102	10	17	40	33	0	0	73	33	1.080
W17066-34	341	216	89	8	15	44	34	0	0	78	34	1.071
W17067-1	277	140	57	17	26	32	24	0	0	57	24	1.075

¹Marketable Yield: size classes A1 to A3.

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

Table 25. Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²								
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
Atlantic	88	9	7	6	1	6	7	3	9	7			2
Lamoka	92	9	9	7	1	7	8	3	7	7			3
Snowden	98	9	9	5	1	7	7	2	7	8			1
Tier 1 = 1 rep													
AC15304-4W	100	9	6	5	1	7	7	3	6	7			2
COA17197-3C	100	9	6	5	1	8	7	2	9	6			3
NDA14138AB-4C	100	9	6	6	1	8	9	1	8	9			3
AF6867-1	100	9	9	5	1	6	7	3	8	6			3
AF6872-11	100	4	9	8	1	8	7	2	7	6			3
AF6876-18	93	7	9	7	1	6	7	1	8	7			2
AF6878-15	100	9	9	7	1	8	8	5	7	6			3
AF6878-22	80	9	9	7	1	8	7	2	8	7			3
AF6880-9	87	7	9	7	1	6	8	2	7	7			3
AF6883-4	87	8	9	7	1	6	7	2	8	7			3
AF6883-8	87	9	9	4	1	7	7	2	9	7			2
AF6883-15	67	8	9	7	1	6	7	3	8	8			3
AF6886-3	67	8	9	7	1	7	7	3	9	7			1
AF6892-6	93	9	9	5	1	6	7	3	8	7			1
AF6894-12	80	7	9	7	1	7	7	2	8	6			3
AF6896-1	73	9	9	7	1	7	7	3	8	7			2
AF6898-1	80	9	6	5	1	7	8	3	7	7			1
AF6901-8	93	9	9	7	1	8	8	2	7	6			2
AF6907-15	100	9	6	3	1	6	7	3	8	7			3
AF6911-4	100	7	9	7	1	7	7	2	8	7			3
AF6978-1	100	9	9	6	1	6	7	2	8	8			1
AF6979-3	73	7	9	7	1	6	7	1	9	8			3
AF6980-1	87	9	6	2	1	8	8	2	8	7			3
NDAF14188-5	87	9	9	5	1	8	8	2	9	5			1
B3379-2	93	9	9	6	1	7	8	3	9	7			3

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						SFA Chip Score	SED Score	Merit
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP			
B3403-6	100	9	6	3	1	6	7	2	7	7			2
B3451-8	100	9	9	5	1	7	8	2	7	7			2
B3471-1	87	9	9	6	1	7	8	3	8	8			3
B3480-15	67	9	6	5	1	6	7	3	8	7			4
BNC811-15	87	8	9	7	1	6	7	4	7	7			2
BNC816-3	73	7	9	6	1	6	7	1	7	7			4
BNC973-7	93	4	9	7	1	8	7	3	7	6			4
BNC974-1	33	9	9	6	1	7	7	3	7	8			3
MSFF035-2	67	8	9	6	1	6	7	2	7	7			4
MSGG169-2	87	8	9	7	1	8	7	2	8	6			3
MSGG190-1	100	9	9	4	1	6	7	3	9	7			2
MSGG190-4	100	9	6	5	1	8	8	2	8	7			1
MSGG194-3	93	9	6	5	1	8	8	3	8	8			1
MSGG195-1	93	9	6	4	1	7	7	3	7	6			1
MSGG212-4	60	8	9	5	1	6	7	3	7	8			3
MSGG221-3	100	9	9	4	1	7	7	3	8	6			1
MSGG263-1	93	9	6	5	1	7	7	3	8	7			2
MSGG276-4	100	9	6	4	1	8	8	1	8	8			3
MSGG282-20	73	8	6	6	1	6	7	1	9	7			2
MSGG302-1	100	9	6	5	1	8	8	2	7	7			2
MSGG349-3	100	9	9	5	1	6	7	2	7	7			3
MSGG365-1	93	9	9	2	1	6	6	2	7	8			4
MSGG384-2	87	9	9	2	1	7	7	2	8	5			2
MSGG409-2	93	9	9	5	1	6	7	2	8	7			1
MSGG409-3	87	9	9	7	1	8	8	3	8	6			3
MSGG426-2	100	9	6	4	1	7	7	2	8	7			3
MN18AF6643-013	93	8	9	6	1	8	8	2	8	8			3
MN18AF6658-005	80	7	9	7	1	7	8	2	9	6			4
MN18W17037-034	100	7	9	7	1	8	8	3	9	8			3
MN18W17043-006	87	9	6	6	1	8	8	3	7	7			2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						SFA Chip Score	SED Score	Merit
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP			
MN18W17052-004	100	5	9	7	1	6	7	1	9	6			3
MN19TX18054-002	100	9	9	7	1	8	8	3	8	7			4
MN19TX18093-001	67	9	6	4	3	8	8	2	6	7			2
MN19TX18304-001	100	9	6	4	3	8	8	2	6	6			2
NC958-B	100	9	6	5	1	8	7	3	7	6			3
NC1030-16	100	9	6	6	1	7	7	2	6	6			2
NC1030-49	87	9	9	6	1	6	7	2	7	8			3
NC1030-60	93	9	6	5	1	6	7	2	8	7			1
NC1030-77	100	9	6	4	1	6	7	1	7	8			2
NC1030-95	100	9	6	6	1	6	7	3	8	7			4
NC1036-05	67	7	9	2	1	6	7	6	7	8			3
NC1036-07	93	9	9	7	1	6	7	3	7	6			2
NC1036-13	87	9	6	2	1	8	8	2	8	7			2
NC1038-03	93	9	9	7	1	6	8	2	8	7			3
NC1039-20	100	9	6	4	1	8	8	2	8	4			2
NC1039-24	93	9	9	4	1	8	8	2	8	7			3
NC1042-05	93	9	6	5	1	6	7	3	9	6			3
NC1042-19	87	9	9	7	1	6	7	4	9	6			2
NC1043-07	87	8	9	5	1	8	8	5	8	7			1
NC1046-03	87	9	9	7	1	6	7	3	8	6			2
NC1048-12	93	9	6	6	1	6	7	2	7	6			1
NC1048-18	73	8	9	4	1	6	7	2	7	8			3
NC1050-06	53	8	6	4	1	6	6	2	8	8			3
NC1051-08	100	8	6	6	1	8	7	5	8	7			3
NC1060-05	100	9	9	4	1	8	8	4	8	8			3
NYU15-8	93	8	9	7	1	8	8	2	7	7			3
NYU18-2	93	9	9	7	1	6	7	3	8	6			2
NYU20-10	100	9	6	3	1	8	8	3	7	7			2
NYU34-3	100	9	9	6	1	8	8	3	9	6			1
NYU34-5	80	9	9	5	1	8	8	2	8	7			2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						SFA Chip Score	SED Score	Merit
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP			
NYU34-6	87	9	6	7	1	7	8	3	7	7			3
NYU35-5	87	9	6	4	1	8	8	2	8	7			2
NYU44-1	93	4	9	8	1	7	8	1	8	7			3
NYU44-7	100	9	9	6	1	8	7	1	7	7			3
AOR10902-2	80	9	9	5	1	8	8	1	8	8			3
AOR16149-4	100	9	6	3	1	8	8	2	8	7			2
AOR18351-2	93	9	6	4	3	7	8	1	7	7			3
AOR18355-2	100	9	9	4	3	7	7	3	6	7			3
TX19009-2W	100	9	9	5	1	8	8	3	9	7			2
TX19411-4W	100	9	6	2	1	8	8	2	7	7			3
W19009-15	93	9	6	6	1	7	8	3	9	7			1
W19009-22	93	9	6	6	1	7	7	3	8	4			4
W19009-26	93	9	9	7	1	6	7	3	9	7			4
W19012-3	100	9	6	7	1	8	8	2	9	4			3
W19020-20	100	9	9	7	1	6	7	2	8	7			1
W19022-9	93	9	6	4	1	6	7	3	8	6			4
W19023-24	93	9	6	6	1	8	8	2	8	8			2
W19024-15	100	9	9	4	1	8	8	3	9	6			3
W19024-20	73	8	9	7	1	6	7	3	8	7			3
W19024-29	100	9	9	5	1	8	8	2	8	6			1
W19026-12	93	9	9	2	1	8	8	2	7	7			3
W19026-21	100	9	9	7	1	7	8	2	8	7			1
W19027-51	100	9	6	5	1	7	7	3	8	8			2
W19028-2	93	9	6	7	1	8	7	3	9	5			3
W19029-14	100	9	6	2	1	6	7	2	8	7			1
W19031-1	80	9	9	4	1	8	8	4	9	7			2
W19031-8	93	9	6	4	1	8	8	3	9	8			1
W19031-14	93	9	9	6	1	6	7	2	8	7			4

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²								
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
Tier 2 = 2 reps													
AC13125-4W	100	9	6	5	1	8	8	3	9	7			3
AC13125-5W	100	9	6	4	1	8	8	3	8	8			1
MSAA217-3	90	8	9	7	1	6	7	2	8	8			2
MSAFB635-15	100	9	8	7	1	8	7	2	8	7			2
MSBB626-11	100	9	8	7	1	8	8	2	7	4			2
MSZ242-13	90	9	9	6	1	6	7	2	8	7			3
NY163	97	8	9	5	1	8	8	3	7	6			2
A13125-3C	93	9	9	6	1	8	8	3	8	6			3
A16150-1C	97	9	8	6	1	8	8	3	9	7			2
AF6165-9	93	9	8	6	1	7	8	3	8	5			2
AF6200-4	100	9	9	7	1	7	7	2	7	7			2
AF6200-7	90	9	6	7	1	7	8	2	9	7			2
AF6206-3	93	9	8	7	1	8	8	4	8	7			2
AF6206-5	93	9	9	7	1	8	8	3	8	7			2
AF6526-7	87	9	8	6	1	8	8	2	8	7			4
AF6552-2	90	9	8	5	1	7	8	3	8	8			4
AF6555-2	97	9	9	7	1	7	7	2	7	7			2
AF6565-8	93	9	8	6	1	6	7	4	9	7			1
AF6601-2	100	9	9	7	1	8	8	2	8	7			2
AF6652-3	100	9	8	6	1	8	7	3	8	7			2
AF6655-1	100	9	9	6	1	7	8	3	8	7			3
AF6669-10	93	9	6	5	1	8	8	2	7	8			2
AF6671-10	97	9	9	5	1	8	8	2	8	6			2
AF6675-1	90	9	9	7	1	7	7	3	8	7			3
WAF16107-2	97	9	9	7	1	7	8	2	8	7			4
WAF17045-2	93	9	9	5	1	7	8	2	7	7			2
B3296-3	97	9	8	6	1	7	8	2	9	7			3
B3379-6	97	9	6	4	2	7	8	2	8	8			2
BNC549-1	97	9	6	4	1	8	8	3	8	7			3
BNC726-5	93	9	6	6	1	6	7	2	9	8			2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						SFA Chip Score	SED Score	Merit
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP			
BNC742-2	93	9	6	4	1	7	7	3	8	7			2
MSAA252-7	90	9	8	6	1	7	7	3	9	7			3
MSAA254-4	97	9	9	4	1	8	8	2	8	7			2
MSDD244-05	97	9	9	7	1	6	7	2	7	7			3
MSDD247-07	100	9	9	5	1	6	7	3	9	7			3
MSDD247-11	100	9	8	6	1	6	7	2	8	8			3
MSDD372-15	93	9	8	5	1	8	8	2	9	6			3
MSDD376-4	93	9	8	7	1	6	7	3	8	8			1
MSEE016-10	100	9	8	6	1	6	7	3	7	7			3
MSEE031-3	97	9	9	4	1	7	8	2	7	7			2
MSEE035-4	97	9	8	5	1	6	7	2	9	7			2
MSEE157-1	97	9	8	4	1	8	8	3	8	6			3
MSEE182-3	100	9	9	7	1	6	6	3	8	8			2
MSEE207-2	100	9	6	4	1	6	8	2	8	7			2
MSFF007-2	97	9	8	6	1	7	8	3	8	7			2
MSFF037-17	100	9	9	6	1	6	7	2	8	7			2
MSFF038-3	100	9	8	5	1	6	7	3	8	8			2
MN18W17037-033	87	9	8	6	1	7	8	2	7	7			2
NC821-30	93	9	8	5	1	8	7	3	7	7			2
NC821-41	100	9	6	4	1	6	7	2	7	7			2
NCB3404-A	93	9	6	3	1	8	8	2	8	5			2
NY173	93	9	8	5	1	8	8	2	8	9			2
NY175	100	9	9	7	1	8	8	3	7	7			1
NY179	90	9	8	7	1	7	7	4	8	8			3
NY180	87	9	9	5	1	8	8	5	8	7			2
NY181	100	9	8	5	1	7	8	3	8	8			2
NYT7-7	90	9	9	6	1	8	8	3	8	8			2
NYT11-3	97	9	9	7	1	8	8	3	8	7			3
NYT19-3	97	9	9	3	1	8	8	3	8	7			2
NYT34-1	100	9	8	4	1	6	7	2	8	7			3

Table 25 (cont'd). Plant growth and tuber characteristics for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						SFA Chip Score	SED Score	Merit
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP			
AOR15304-7	97	9	6	4	1	7	7	2	8	5			2
AOR16159-4	100	9	6	6	1	7	8	2	8	6			1
AOR16164-1	90	9	9	7	1	8	8	2	8	6			3
COOR17160-3	93	9	9	7	1	8	8	3	9	7			3
TX18042-1W	90	9	6	4	1	8	8	3	8	5			3
TX18170-4W	93	9	9	5	1	8	8	3	8	7			3
W17AF6670-1	100	9	8	6	1	7	8	2	8	7			2
W17039-7	97	9	6	3	1	8	8	2	9	7			2
W17039-31	100	9	9	5	1	8	7	3	7	7			3
W17043-37	100	9	6	5	1	7	7	2	8	8			2
W17049-10	97	9	9	6	1	8	8	2	8	8			2
W17060-9	100	9	6	6	1	7	7	3	9	7			2
W17065-11	97	9	6	6	2	7	7	4	9	6			1
W17066-34	100	9	8	7	1	6	7	4	9	8			3
W17067-1	100	9	6	5	1	7	7	2	9	7			3

¹Percent 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.

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

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

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

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

Table 26. External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Atlantic	0	0	6	10	16	8	0	0	0
Lamoka	0	0	5	12	17	0	0	0	0
Snowden	0	2	4	4	9	0	0	0	0
Tier 1 = 1 rep									
AC15304-4W	0	0	5	13	18	0	0	0	0
COA17197-3C	0	0	0	12	12	0	0	0	0
NDA14138AB-4C	0	0	8	19	27	10	0	0	0
AF6867-1	0	0	0	19	19	0	0	0	0
AF6872-11	0	0	0	3	3	0	0	0	0
AF6876-18	0	0	0	4	4	0	0	0	0
AF6878-15	0	0	3	0	3	0	0	0	10
AF6878-22	0	0	0	21	21	0	0	0	0
AF6880-9	0	5	0	23	29	0	0	0	0
AF6883-4	0	0	2	11	13	0	0	0	0
AF6883-8	0	0	2	2	5	0	0	0	0
AF6883-15	0	0	2	9	12	0	0	0	0
AF6886-3	0	0	0	0	0	0	0	0	0
AF6892-6	0	0	0	5	5	0	0	0	0
AF6894-12	0	1	0	21	22	0	0	0	0
AF6896-1	0	0	0	17	17	0	0	0	0
AF6898-1	0	0	3	4	6	0	0	0	0
AF6901-8	0	0	9	6	15	0	0	0	0
AF6907-15	0	0	5	11	16	0	0	0	0
AF6911-4	0	0	0	13	13	10	0	0	10
AF6978-1	0	0	4	5	9	0	0	0	0
AF6979-3	0	0	0	5	5	0	0	0	0
AF6980-1	0	2	0	13	14	0	0	0	0
NDAF14188-5	0	0	0	3	3	0	0	0	0
B3379-2	0	0	7	4	11	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
B3403-6	0	0	0	2	2	0	0	0	0
B3451-8	0	0	3	3	7	0	0	0	0
B3471-1	0	0	2	12	14	0	0	0	0
B3480-15	0	2	0	30	32	0	0	0	0
BNC811-15	0	0	0	5	5	0	0	0	0
BNC816-3	0	5	0	33	38	0	0	0	0
BNC973-7	0	0	0	23	23	0	0	0	0
BNC974-1	0	0	7	0	7	0	0	0	0
MSFF035-2	0	0	6	18	24	0	0	0	0
MSGG169-2	0	0	0	17	17	0	0	0	0
MSGG190-1	8	0	2	0	10	0	0	0	0
MSGG190-4	0	0	1	2	3	0	0	0	0
MSGG194-3	0	0	6	1	7	0	0	0	0
MSGG195-1	0	0	2	1	3	0	0	0	0
MSGG212-4	0	0	0	16	16	0	0	0	0
MSGG221-3	0	0	2	3	5	0	0	0	0
MSGG263-1	0	0	6	7	13	0	0	0	0
MSGG276-4	0	0	0	5	5	0	0	0	0
MSGG282-20	6	0	0	9	15	0	0	0	0
MSGG302-1	0	0	2	8	11	0	0	0	0
MSGG349-3	0	0	0	9	9	0	0	0	10
MSGG365-1	0	0	0	21	21	0	0	0	0
MSGG384-2	0	0	5	2	8	0	0	0	0
MSGG409-2	0	0	3	2	5	0	0	0	0
MSGG409-3	0	0	0	19	19	0	0	0	0
MSGG426-2	0	0	6	7	12	0	0	0	0
MN18AF6643-013	0	0	0	20	20	0	0	0	0
MN18AF6658-005	0	0	2	23	25	0	0	10	0
MN18W17037-034	0	0	0	21	21	0	0	0	0
MN18W17043-006	0	0	3	7	10	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
MN18W17052-004	0	7	0	11	17	0	0	0	0
MN19TX18054-002	9	0	7	25	41	0	0	0	0
MN19TX18093-001	0	0	12	6	18	0	0	0	0
MN19TX18304-001	0	0	3	6	9	0	0	0	0
NC958-B	0	0	9	12	21	0	0	10	0
NC1030-16	0	0	10	10	19	0	0	0	0
NC1030-49	0	12	0	8	19	0	0	0	0
NC1030-60	0	0	4	0	4	0	0	0	0
NC1030-77	0	0	0	12	12	0	0	0	0
NC1030-95	0	0	4	14	18	44	0	0	0
NC1036-05	0	0	9	6	14	0	0	0	0
NC1036-07	0	0	0	18	18	0	0	0	0
NC1036-13	0	10	0	2	12	0	0	0	0
NC1038-03	0	0	7	0	7	0	0	10	0
NC1039-20	0	0	0	14	14	0	0	0	0
NC1039-24	0	0	4	17	21	0	0	0	10
NC1042-05	0	0	0	13	13	0	0	0	0
NC1042-19	0	0	13	1	14	0	0	0	0
NC1043-07	0	0	5	2	7	0	0	0	0
NC1046-03	0	0	0	12	12	0	0	0	0
NC1048-12	0	0	3	2	5	0	0	0	0
NC1048-18	0	0	9	4	13	0	0	0	0
NC1050-06	0	0	0	12	12	0	0	0	0
NC1051-08	0	0	4	0	4	0	0	10	0
NC1060-05	0	0	9	8	17	10	0	0	10
NYU15-8	0	0	4	8	11	0	0	10	0
NYU18-2	0	0	0	17	17	0	0	0	0
NYU20-10	0	0	0	18	18	0	0	0	0
NYU34-3	0	0	2	4	6	0	0	0	0
NYU34-5	0	0	0	15	15	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
NYU34-6	0	0	18	3	21	0	0	0	0
NYU35-5	0	3	0	18	21	0	0	0	0
NYU44-1	0	0	0	10	10	0	0	0	0
NYU44-7	0	0	0	10	10	0	0	0	0
AOR10902-2	0	0	0	7	7	0	0	0	0
AOR16149-4	0	0	0	15	15	0	0	0	0
AOR18351-2	2	0	0	10	12	0	0	0	0
AOR18355-2	0	0	0	24	24	0	0	0	0
TX19009-2W	0	0	0	5	5	0	0	0	0
TX19411-4W	0	0	0	14	14	0	0	0	0
W19009-15	0	0	0	8	8	0	0	0	0
W19009-22	14	0	0	7	21	0	0	10	0
W19009-26	0	0	0	50	50	0	0	0	10
W19012-3	0	0	0	22	22	0	0	0	0
W19020-20	0	0	0	4	4	0	0	0	0
W19022-9	0	0	7	9	16	0	0	10	0
W19023-24	0	0	0	3	3	0	0	0	0
W19024-15	0	2	0	12	14	0	0	0	0
W19024-20	0	0	0	0	0	0	0	0	0
W19024-29	0	0	5	0	5	0	0	0	0
W19026-12	2	0	5	0	8	0	0	0	0
W19026-21	0	3	0	6	9	0	0	0	0
W19027-51	0	0	0	10	10	0	0	0	0
W19028-2	3	4	0	17	24	0	0	0	0
W19029-14	0	0	0	7	7	0	0	0	0
W19031-1	0	0	0	19	19	0	0	0	0
W19031-8	0	0	0	7	7	0	0	0	0
W19031-14	0	3	0	19	22	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Tier 2 = 2 reps									
AC13125-4W	0	0	13	3	16	0	0	5	0
AC13125-5W	1	0	4	5	10	0	0	0	0
MSAA217-3	0	4	2	8	13	0	0	15	0
MSAFB635-15	0	3	4	5	12	0	0	0	0
MSBB626-11	0	0	4	2	6	10	0	0	0
MSZ242-13	0	0	3	18	21	0	0	0	0
NY163	0	2	0	4	6	0	0	0	0
A13125-3C	0	0	0	19	19	0	0	0	0
A16150-1C	0	0	3	6	10	5	0	0	0
AF6165-9	0	0	0	11	11	0	0	0	0
AF6200-4	0	0	0	13	13	0	0	0	0
AF6200-7	0	0	2	4	6	0	0	0	0
AF6206-3	0	0	0	12	12	0	0	0	0
AF6206-5	0	0	3	14	17	0	0	0	0
AF6526-7	1	0	5	1	8	0	0	5	10
AF6552-2	0	0	4	8	12	0	0	20	0
AF6555-2	3	0	3	12	18	0	0	0	0
AF6565-8	1	0	2	4	7	0	0	0	0
AF6601-2	0	0	0	14	14	0	0	0	0
AF6652-3	0	0	0	16	16	0	0	0	0
AF6655-1	0	6	3	5	14	0	0	0	0
AF6669-10	0	2	1	9	12	0	0	0	5
AF6671-10	0	0	4	11	15	0	0	0	0
AF6675-1	0	8	6	4	18	0	0	0	0
WAF16107-2	0	0	0	26	26	0	0	0	0
WAF17045-2	0	2	0	9	11	0	0	0	0
B3296-3	0	0	6	6	12	0	0	10	5
B3379-6	0	0	1	7	8	0	0	0	0
BNC549-1	9	0	0	4	14	0	0	0	0
BNC726-5	0	2	3	13	18	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
BNC742-2	0	0	5	12	16	0	0	0	5
MSAA252-7	0	4	4	14	22	0	0	5	0
MSAA254-4	0	0	2	9	11	0	0	0	0
MSDD244-05	2	0	0	30	32	0	0	0	0
MSDD247-07	0	0	8	5	13	0	0	0	10
MSDD247-11	0	0	4	11	15	0	0	0	5
MSDD372-15	0	0	0	12	12	0	0	5	0
MSDD376-4	0	0	4	6	9	0	0	0	0
MSEE016-10	0	0	3	1	4	0	0	0	0
MSEE031-3	0	0	9	1	9	0	0	0	0
MSEE035-4	0	0	4	3	7	0	0	0	0
MSEE157-1	0	0	9	5	14	0	0	0	0
MSEE182-3	0	0	0	12	12	0	0	0	0
MSEE207-2	0	0	1	8	9	0	0	0	0
MSFF007-2	0	0	3	6	9	0	0	0	0
MSFF037-17	0	1	7	2	10	0	0	0	0
MSFF038-3	0	3	5	9	17	0	0	0	0
MN18W17037-033	0	3	0	9	13	0	0	0	0
NC821-30	0	0	5	7	12	0	0	0	0
NC821-41	0	0	3	9	12	15	0	0	0
NCB3404-A	0	0	2	7	9	0	0	0	0
NY173	0	0	3	8	11	0	0	0	0
NY175	0	1	3	5	9	0	0	0	0
NY179	0	0	0	9	9	0	0	5	0
NY180	0	0	3	13	16	0	0	0	0
NY181	0	0	2	6	8	0	0	0	0
NYT7-7	0	0	0	1	1	0	0	0	0
NYT11-3	0	4	6	12	22	0	0	0	0
NYT19-3	0	2	5	4	11	0	0	0	0
NYT34-1	0	0	1	13	14	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2023 Potatoes USA National Chip Processing Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
AOR15304-7	0	0	2	5	7	0	0	0	0
AOR16159-4	0	0	4	3	6	0	0	0	0
AOR16164-1	0	0	5	14	18	5	0	0	0
COOR17160-3	6	0	0	17	23	0	0	0	5
TX18042-1W	0	2	0	7	9	0	0	0	0
TX18170-4W	0	0	3	5	8	0	0	0	0
W17AF6670-1	0	0	2	7	9	0	0	0	0
W17039-7	0	0	2	7	9	0	0	0	0
W17039-31	2	1	1	4	8	10	0	0	0
W17043-37	0	0	3	5	8	0	0	0	0
W17049-10	0	3	2	9	14	0	0	0	0
W17060-9	0	4	0	9	13	0	0	0	0
W17065-11	0	0	0	8	8	0	0	0	0
W17066-34	0	1	0	20	20	5	0	0	0
W17067-1	0	0	0	12	12	0	0	0	0

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

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

Chapter 10. USDA Chipping Potato Variety Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2023
Vine Kill Date	N/A
Harvest Date	May 8, 2023
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	14 (Standard: Atlantic)
Number of Clones	18
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	47 DAP
Highest Total Yield	BNC182-5 (355 cwt/acre or 39.8 T/ha)
Highest Marketable Yield	BNC182-5 (284 cwt/acre or 31.8 T/ha)
Highest Specific Gravity	B3379-2 (1.080)

Table 27. Production statistics for the 2023 USDA Chipping Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-96 days</u>												
BNC182-5	355	284	140	4	7	23	66	0	0	89	66	1.060
BNC811-15	326	209	103	13	18	28	40	0	0	69	40	1.068
BNC816-3	265	162	80	10	15	33	41	0	0	75	41	1.065
BNC833-2	218	119	59	12	30	43	15	0	0	58	15	1.059
BNC839-5	181	117	58	10	16	24	51	0	0	74	51	1.053
B3379-2	239	132	65	16	21	38	26	0	0	64	26	1.080
B3403-6	305	161	79	18	25	35	22	0	0	57	22	1.066
BNC559-1	268	187	93	5	11	38	45	0	0	84	45	1.060
Little Ruby (B2152-17)	219	129	64	18	16	39	28	0	0	67	28	1.058
B2869-29	206	122	60	12	17	39	32	0	0	71	32	1.074
BNC916-3	161	42	21	43	33	22	1	0	0	24	1	1.061
BNC917-2	279	194	96	5	15	41	39	0	0	80	39	1.052
BD1505-4	51	2	1	69	27	5	0	0	0	5	0	1.062
BNC973-7	168	90	45	29	19	38	14	0	0	52	14	1.062
BNC974-1	277	193	96	6	6	29	59	0	0	88	59	1.051
BNC981-1	213	117	58	16	20	47	17	0	0	64	17	1.057
B3451-8	174	74	37	24	28	34	15	0	0	48	15	1.072
B3465-4	189	94	47	13	18	25	44	0	0	69	44	1.053
B3471-1	230	90	45	23	26	36	16	0	0	51	16	1.067
Atlantic	312	202	100	5	10	25	59	1	0	85	60	1.073
Chieftain	239	168	83	5	13	40	42	0	0	82	42	1.058
Chippewa	226	118	58	18	21	40	21	0	0	62	21	1.058
Dark Red Norland	150	59	29	22	27	33	18	0	0	51	18	1.050
Elkton (B1992-106)	255	171	84	8	11	30	50	2	0	82	52	1.062
Green Mountain	204	102	50	22	18	46	14	0	0	60	14	1.065
Harley Blackwell (B0564-8)	216	106	52	16	20	25	38	0	0	64	38	1.069
Katahdin	224	108	53	16	22	41	21	0	0	62	21	1.057
Kennebec	304	185	91	6	13	49	32	0	0	81	32	1.062
Peter Wilcox (B1816-5)	253	177	87	8	17	39	36	0	0	75	36	1.065
Snowden	240	181	89	5	12	38	45	0	0	83	45	1.064

Table 27 (cont'd). Production statistics for the 2023 USDA Chipping Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
Superior	211	99	49	17	22	38	22	0	0	60	22	1.062
Yukon Gold	253	145	72	7	10	32	51	0	0	83	51	1.062
MSD ³	72	56		8	7	12	13	ns	ns	11	13	0.007
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.5381	-	<0.0001	<0.0001	<0.0001

¹Marketable Yield: size classes A1 to A3.

²Size 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.

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

Table 28. Plant growth and tuber characteristics for the 2023 USDA Chipping Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
BNC182-5	100	9	6	6	1	8	8	2	7	5	2
BNC811-15	99	9	9	7	1	7	7	3	7	6	3
BNC816-3	100	9	8	5	1	8	8	3	6	7	2
BNC833-2	92	9	8	3	9	1	8	6	8	6	2
BNC839-5	88	9	9	7	1	2	8	3	9	8	3
B3379-2	98	9	9	6	1	8	8	2	9	7	3
B3403-6	99	9	6	6	1	8	7	3	8	8	2
BNC559-1	98	9	9	6	1	1	9	3	9	7	3
Little Ruby (B2152-17)	92	9	8	4	3	2	9	1	9	8	3
B2869-29	99	9	6	5	1	8	8	2	8	6	3
BNC916-3	99	9	9	6	1	1	9	3	8	5	3
BNC917-2	97	9	8	5	3	1	8	6	7	5	2
BD1505-4	91	8	8	6	3
BNC973-7	96	7	9	9	1	8	7	5	7	6	3
BNC974-1	97	9	8	4	1	8	8	3	7	7	2
BNC981-1	97	9	9	5	1	2	8	3	8	6	3
B3451-8	100	9	9	5	4	7	8	2	7	7	3
B3465-4	95	9	6	4	1	8	8	3	8	8	4
B3471-1	96	9	9	6	1	7	8	2	8	8	4
Atlantic	97	9	8	7	1	8	7	2	8	6	-
Chieftain	93	9	9	7	1	2	8	3	8	6	2
Chippewa	99	9	6	3	1	8	8	3	8	7	3
Dark Red Norland	97	9	9	4	1	2	8	3	7	7	3
Elkton (B1992-106)	92	9	8	7	1	7	7	4	9	7	3
Green Mountain	96	9	8	6	1	8	8	3	7	6	3
Harley Blackwell (B0564-8)	92	9	8	6	1	7	7	2	9	7	4
Katahdin	98	9	8	6	1	8	8	3	7	6	4
Kennebec	98	9	9	6	1	8	8	6	6	5	2
Peter Wilcox (B1816-5)	98	9	8	5	4	1	8	3	8	6	1
Snowden	99	9	9	5	1	8	8	3	7	7	1

Table 28 (cont'd). Plant growth and tuber characteristics for the 2023 USDA Chipping Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Superior	97	9	8	6	1	8	8	2	6	7	4
Yukon Gold	95	9	9	6	3	8	8	3	7	7	3

¹Percent 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.

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

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

Table 29. External and internal defects for the 2023 USDA Chipping Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
BNC182-5	0	0	6	6	13	0	0	0	0
BNC811-15	1	0	3	6	10	0	0	5	0
BNC816-3	0	1	4	14	18	0	0	0	0
BNC833-2	0	1	0	6	7	0	0	0	0
BNC839-5	0	0	4	9	13	0	0	0	0
B3379-2	0	0	5	8	13	0	0	0	0
B3403-6	0	0	1	7	8	0	0	0	0
BNC559-1	0	0	2	14	16	0	0	5	0
Little Ruby (B2152-17)	0	0	2	10	13	0	0	0	0
B2869-29	1	1	9	5	16	0	0	0	0
BNC916-3	0	2	1	3	6	0	5	0	0
BNC917-2	0	1	3	9	12	0	0	0	0
BD1505-4	0	0	2	7	9	0	0	0	0
BNC973-7	0	0	2	10	12	0	0	0	0
BNC974-1	11	0	2	8	20	0	0	8	0
BNC981-1	0	0	7	7	14	0	0	0	0
B3451-8	0	0	4	7	11	0	0	0	0
B3465-4	0	8	4	21	33	0	0	0	0
B3471-1	0	0	12	11	23	0	0	0	0
Atlantic	1	1	4	17	23	8	0	0	10
Chieftain	0	0	4	10	14	0	0	0	0
Chippewa	0	1	6	11	18	0	0	0	0
Dark Red Norland	0	1	3	20	23	3	0	3	0
Elkton (B1992-106)	0	0	13	8	21	0	0	3	0
Green Mountain	0	1	3	13	16	0	0	3	0
Harley Blackwell (B0564-8)	0	0	11	12	22	0	0	0	0
Katahdin	0	0	15	7	22	0	0	0	0
Kennebec	0	0	13	12	25	0	0	0	3
Peter Wilcox (B1816-5)	0	0	3	3	7	0	0	0	3
Snowden	0	0	6	3	9	0	0	0	0

Table 29 (cont'd). External and internal defects for the 2023 USDA Chipping Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Superior	0	0	9	14	23	0	0	0	0
Yukon Gold	1	2	8	20	31	3	0	5	3
MSD ³	2	ns	9	9	11	2	ns	ns	5
P Value	<0.0001	0.5788	0.0008	<0.0001	<0.0001	<0.0001	0.4946	0.3994	0.0031

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

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

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

Chapter 11. Potatoes USA SNAC Potato Variety Trial

General Comments

A goal of the SNAC trial is to identify a short-season processing potato variety with better production and quality characteristics than the “standard” Atlantic. Potato samples were fried by Utz Quality Foods.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2023
Vine Kill Date	N/A
Harvest Date	May 2, 2023
Season Length	90 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	2 (Standard: Atlantic)
Number of Clones	7
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	47 DAP
Highest Total Yield	Atlantic (395 cwt/acre or 44.3 T/ha)
Highest Marketable Yield	Atlantic (316 cwt/acre or 35.4 T/ha)
Highest Specific Gravity	AF6200-4 (1.085)

Table 30. Production statistics for the 2023 Potatoes USA SNAC Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-90 days</u>												
MSAFB635-15	312	212	67	8	17	32	43	0	0	75	43	1.081
AF6165-9	370	274	86	6	11	37	46	0	0	83	46	1.082
AF6200-4	337	225	71	8	12	28	52	0	0	80	52	1.085
MSAA217-3	338	250	79	6	10	27	56	0	0	83	56	1.081
MSBB626-11	319	236	75	5	8	20	67	0	0	88	67	1.072
NY174	382	281	89	5	8	23	64	0	0	87	64	1.071
NY177	352	223	71	12	18	43	27	0	0	70	27	1.082
Atlantic	395	316	100	3	6	20	71	0	0	91	71	1.076
Snowden	301	234	74	5	10	33	52	0	0	85	52	1.073
MSD ³	63	54		3	4	7	10	ns	ns	6	10	0.007
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001

¹Marketable Yield: size classes A1 to A3.

²Size 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.

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

Table 31. Plant growth and tuber characteristics for the 2023 Potatoes USA SNAC Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
MSAFB635-15	93	9	7	8	1	7	7	1	9	6	3
AF6165-9	87	9	7	7	1	8	8	2	8	4	2
AF6200-4	91	9	8	8	1	7	8	2	8	7	2
MSAA217-3	90	9	9	8	1	6	6	2	8	4	2
MSBB626-11	91	9	7	6	1	8	7	2	6	7	2
NY174	87	9	8	6	1	7	7	3	7	6	2
NY177	86	9	8	7	1	7	7	2	9	6	2
Atlantic	94	9	7	7	1	6	7	2	8	5	2
Snowden	90	9	9	5	1	6	7	2	7	7	2

¹Percent 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.

²Internal 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 2023 Potatoes USA SNAC Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
MSAFB635-15	0	1	4	7	11	0	0	0	0
AF6165-9	1	1	2	8	11	0	0	0	0
AF6200-4	0	0	3	14	17	0	0	1	0
MSAA217-3	0	0	1	10	11	0	0	0	0
MSBB626-11	2	0	2	12	16	3	0	9	1
NY174	0	2	2	12	16	1	0	3	0
NY177	0	0	1	8	10	1	0	0	0
Atlantic	1	0	2	9	12	6	1	1	4
Snowden	0	0	3	6	9	0	0	0	0
MSD ³	ns	2	2	6	5	5	ns	7	ns
P Value	0.2496	0.0283	0.0028	<0.0001	<0.0001	0.0053	0.4464	0.0012	0.0844

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

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

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

Chapter 12. NE2231 Regional Project Potato Variety Trial

General Comments

The NE2231 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 26, 2023
Vine Kill Date	N/A
Harvest Date	May 5, 2023
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	13 (Standard: Atlantic)
Number of Clones	37
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	47 DAP
Highest Total Yield	NY177 (433 cwt/acre or 48.5 T/ha)
Highest Marketable Yield	NY174 (366 cwt/acre or 41.0 T/ha)
Highest Specific Gravity	CO10098-5W/Y, MSAFB635-15 (1.082)
Best Appearance Rating	Harley Blackwell, Yukon Gold, AF5819-2, BNC839-5, CO10098-5W/Y, NCB2607-3 (9, excellent)

Table 33. Production statistics for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
Season-99 days												
Harley Blackwell (B0564-8)	255	155	50	15	19	37	29	0	0	66	29	1.067
Atlantic	387	312	100	3	4	17	76	0	0	93	76	1.077
Chieftain	383	319	102	3	7	34	57	0	0	91	57	1.062
Dark Red Norland	271	163	52	12	16	36	36	0	0	72	36	1.062
Katahdin	303	209	67	9	14	41	36	0	0	77	36	1.061
Kennebec	346	276	88	4	8	48	39	0	0	87	39	1.068
Lakeview Russet	392	284	91	4	10	42	45	0	0	87	45	1.066
Russet Burbank	302	131	42	14	26	40	20	0	0	60	20	1.064
Russet Norkotah	354	256	82	7	14	41	38	0	0	78	38	1.065
Shepody	291	195	63	9	17	50	25	0	0	74	25	1.072
Snowden	291	225	72	7	9	35	49	0	0	84	49	1.071
Superior	306	206	66	7	14	49	30	0	0	79	30	1.072
Yukon Gold	297	213	68	4	6	23	68	0	0	91	68	1.073
AAF10596-1	333	234	75	7	14	34	44	0	0	78	44	1.078
AF5071-2	300	144	46	17	31	41	11	0	0	53	11	1.068
AF5521-1	391	334	107	3	5	37	55	0	0	92	55	1.075
AF5707-1	370	275	88	6	12	45	36	0	0	82	36	1.066
AF5735-8	366	235	75	7	25	62	6	0	0	68	6	1.062
AF5750-16	390	191	61	11	38	39	12	0	0	51	12	1.069
AF5762-8	322	202	65	11	22	53	15	0	0	68	15	1.070
AF5819-2	321	232	74	9	12	31	49	0	0	80	49	1.067
AF5933-4	376	318	102	3	8	29	60	0	0	89	60	1.081
AF6075-8	402	293	94	7	12	35	46	0	0	81	46	1.066
AF6165-9	367	279	89	7	10	39	44	0	0	83	44	1.079
AF6194-4	323	246	79	3	10	31	56	1	0	88	56	1.068
AF6200-4	348	260	83	6	9	27	58	1	0	85	58	1.078
AF6340-6	426	314	101	3	9	29	59	0	0	88	59	1.058
AF6522-1	283	154	49	22	25	37	16	0	0	53	16	1.077
AF6565-8	381	301	96	6	8	34	52	0	0	86	52	1.070
AF6601-2	329	251	81	5	12	27	57	0	0	84	57	1.073

Table 33 (cont'd). Production statistics for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²						Size Class Range (%)		Specific Gravity
		(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
B3296-3	339	260	83	6	10	20	64	0	0	84	64	1.077
BNC559-1	322	246	79	6	12	59	23	0	0	83	23	1.066
BNC816-7	316	213	68	10	20	34	36	0	0	70	36	1.074
BNC833-2	260	140	45	15	31	37	17	0	0	54	17	1.067
BNC839-5	236	154	49	10	18	22	50	0	0	73	50	1.057
BNC917-2	382	295	94	4	13	39	45	0	0	84	45	1.058
CO10098-5W/Y	192	71	23	31	32	37	0	0	0	37	0	1.082
CO14040-3R	182	34	11	44	37	19	1	0	0	19	1	1.069
CO15211-1R	305	142	45	22	29	34	14	0	0	49	14	1.060
CO15211-5R	296	149	48	22	24	31	23	0	0	54	23	1.063
MSAFB609-12	283	119	38	12	22	43	23	0	0	65	23	1.075
MSAFB635-15	374	281	90	8	14	33	45	0	0	78	45	1.082
NCB2607-3	265	155	50	14	23	33	30	0	0	63	30	1.062
NDAF141Y-3	383	251	80	11	19	46	24	0	0	70	24	1.065
NDAF12238Y-2	384	313	100	4	10	38	48	0	0	86	48	1.064
NY163	256	178	57	8	19	37	36	0	0	73	36	1.074
NY171	343	253	81	7	17	61	15	0	0	76	15	1.064
NY174	419	366	117	2	5	17	75	0	0	93	75	1.071
NY177	433	297	95	12	15	50	22	0	0	72	22	1.081
WAF14096-5	332	221	71	11	22	36	31	0	0	67	31	1.060
MSD ³	143	133		11	14	19	28	ns	ns	22	28	0.011
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.5401	-	<0.0001	<0.0001	<0.0001

¹Marketable Yield: size classes A1 to A3.

²Size 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.

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

Table 34. Plant growth and tuber characteristics for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Harley Blackwell (B0564-8)	94	9	6	7	1	6	7	2	8	9	3
Atlantic	96	9	9	9	1	6	7	2	7	7	-
Chieftain	100	9	8	8	1	2	9	3	9	7	1
Dark Red Norland	98	8	7	6	1	2	9	3	8	7	3
Katahdin	90	9	8	8	1	8	8	3	8	6	3
Kennebec	94	9	8	9	1	8	8	6	9	6	1
Lakeview Russet	93	9	7	8	1	6	8	8	7	6	3
Russet Burbank	94	9	9	8	1	5	4	6	7	6	4
Russet Norkotah	94	9	8	8	1	5	4	6	7	8	2
Shepody	93	9	8	8	1	8	8	4	9	6	2
Snowden	98	9	8	7	1	6	7	2	6	6	2
Superior	95	9	8	8	1	7	8	2	7	7	3
Yukon Gold	91	9	9	8	3	8	9	3	8	9	2
AAF10596-1	94	9	8	7	1	6	8	4	7	6	2
AF5071-2	98	9	7	7	1	6	6	6	8	8	2
AF5521-1	92	9	9	9	1	5	4	6	7	7	2
AF5707-1	99	9	8	9	1	5	4	5	8	8	1
AF5735-8	88	8	9	9	1	5	4	6	8	8	2
AF5750-16	99	9	8	8	1	8	8	5	7	7	2
AF5762-8	98	9	8	8	1	5	4	6	9	8	2
AF5819-2	94	9	6	7	1	8	9	3	8	9	2
AF5933-4	100	9	8	8	1	8	8	2	7	7	1
AF6075-8	93	9	6	8	1	5	4	6	8	8	2
AF6165-9	96	9	8	8	1	8	8	2	8	5	1
AF6194-4	89	9	8	8	1	6	8	6	9	6	2
AF6200-4	97	9	8	9	1	7	7	2	7	7	2
AF6340-6	95	9	9	8	1	6	5	6	7	6	2
AF6522-1	98	8	6	7	1	8	8	2	7	7	3
AF6565-8	85	9	6	8	1	7	8	2	8	7	1
AF6601-2	89	9	8	8	1	7	7	2	8	7	2

Table 34 (cont'd). Plant growth and tuber characteristics for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ²						
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
B3296-3	95	9	6	8	1	8	9	2	8	8	2
BNC559-1	95	9	8	8	1	1	8	5	9	7	3
BNC816-7	98	9	7	7	1	6	7	2	8	7	2
BNC833-2	92	8	7	6	9	1	9	3	8	4	3
BNC839-5	92	9	9	8	1	2	9	1	8	9	3
BNC917-2	93	9	8	7	3	1	9	5	8	6	1
CO10098-5W/Y	99	9	7	8	5	7	9	3	9	9	3
CO14040-3R	94	8	6	6	1	2	8	3	7	6	3
CO15211-1R	98	9	6	4	1	2	9	2	9	7	3
CO15211-5R	96	8	6	4	1	2	9	3	9	8	3
MSAFB609-12	94	9	7	7	1	8	8	3	9	6	3
MSAFB635-15	92	9	8	9	1	6	7	2	8	7	1
NCB2607-3	99	9	6	6	3	2	9	1	9	9	3
NDAF141Y-3	95	9	8	6	1	2	9	3	7	8	2
NDAF12238Y-2	88	9	6	6	1	2	9	3	8	8	1
NY163	89	8	8	8	1	8	8	2	8	7	2
NY171	93	9	8	8	1	8	9	6	8	8	2
NY174	92	9	9	9	1	8	8	3	9	7	1
NY177	98	9	9	8	1	8	8	3	9	8	1
WAF14096-5	95	9	6	7	3	8	8	2	8	8	2

¹Percent 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.

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

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

Table 35. External and internal defects for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
Harley Blackwell (B0564-8)	0	0	3	3	6	5	0	0	0
Atlantic	1	0	3	10	13	0	0	0	3
Chieftain	0	1	4	3	8	0	0	0	3
Dark Red Norland	4	0	5	8	16	0	0	3	0
Katahdin	0	0	8	5	13	0	0	0	0
Kennebec	0	1	2	6	9	0	0	0	0
Lakeview Russet	1	1	3	11	15	0	0	5	0
Russet Burbank	0	21	6	1	28	0	0	0	0
Russet Norkotah	0	0	3	5	8	0	0	0	0
Shepody	1	1	3	5	9	0	0	0	0
Snowden	0	0	2	7	8	0	0	0	0
Superior	1	3	1	10	15	0	0	0	0
Yukon Gold	0	3	7	11	21	3	0	0	0
AAF10596-1	0	1	0	9	11	0	0	0	0
AF5071-2	1	0	1	7	9	0	0	0	3
AF5521-1	0	0	1	6	7	0	0	3	3
AF5707-1	0	0	0	8	9	0	0	0	0
AF5735-8	0	0	1	5	6	0	0	0	0
AF5750-16	0	0	2	3	5	0	0	0	0
AF5762-8	0	1	0	8	9	0	0	0	3
AF5819-2	0	0	6	4	10	0	0	0	0
AF5933-4	0	0	3	2	5	0	0	0	0
AF6075-8	2	0	1	7	11	0	0	0	0
AF6165-9	0	0	2	6	8	0	0	0	3
AF6194-4	1	1	6	5	12	0	0	0	0
AF6200-4	0	0	5	7	12	0	0	0	0
AF6340-6	0	1	3	12	16	0	0	0	0
AF6522-1	0	0	0	2	2	0	0	0	0
AF6565-8	1	0	2	5	9	0	0	0	0
AF6601-2	1	0	4	3	8	0	0	0	0

Table 35 (cont'd). External and internal defects for the 2023 University of Maine NE2231 Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	CRS	IHN	BC
B3296-3	0	0	2	7	9	0	0	0	0
BNC559-1	0	0	3	5	8	0	0	8	0
BNC816-7	0	0	1	3	4	0	0	0	0
BNC833-2	0	0	0	2	3	0	0	0	0
BNC839-5	0	0	6	4	10	0	0	0	0
BNC917-2	0	0	4	5	8	0	0	0	0
CO10098-5W/Y	0	0	1	1	2	0	0	0	0
CO14040-3R	0	0	6	2	8	0	0	0	0
CO15211-1R	0	0	0	4	5	0	0	0	0
CO15211-5R	1	0	3	4	8	0	0	0	0
MSAFB609-12	0	0	3	3	6	0	0	0	0
MSAFB635-15	0	0	3	0	3	0	0	0	0
NCB2607-3	1	0	1	4	6	0	0	0	0
NDAF141Y-3	0	0	1	5	6	0	0	0	0
NDAF12238Y-2	0	0	2	4	6	0	0	0	0
NY163	0	0	0	5	5	0	0	0	0
NY171	0	0	1	3	4	0	0	0	0
NY174	0	0	0	5	6	3	0	0	0
NY177	0	0	1	6	7	0	0	0	3
WAF14096-5	0	0	1	2	3	0	0	0	0
MSD ³	3	7	ns	10	14	ns	ns	ns	ns
P Value	0.0131	<0.0001	0.2550	<0.0001	<0.0001	0.4845	-	0.5601	0.6989

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

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

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

Appendix 1. Potato Season Weather Data for Northeast Florida

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

Table 36. Daily rainfall amounts (in) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and May 16, 2023.

Day	January	February	March	April	May
1	0.00	0.00	0.00	0.00	0.00
2	0.01	0.00	0.00	0.00	0.00
3	0.01	0.24	0.00	0.00	0.00
4	0.49	0.00	0.00	0.00	0.00
5	0.14	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.24	0.00
9	0.00	0.00	0.00	0.08	0.00
10	0.00	0.95	0.13	0.75	0.11
11	0.00	1.34	0.00	0.01	0.00
12	0.00	0.02	0.00	0.00	0.00
13	0.47	0.00	2.06	1.60	0.01
14	0.00	0.00	0.00	0.37	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.06	0.00	0.06
17	0.00	0.03	0.00	0.03	-
18	0.00	0.00	0.31	0.00	-
19	0.00	0.00	0.11	0.00	-
20	0.00	0.00	0.03	0.00	-
21	0.86	0.00	0.03	0.00	-
22	0.02	0.00	0.01	0.03	-
23	0.00	0.00	0.00	0.00	-
24	0.00	0.00	0.00	0.02	-
25	0.13	0.00	0.00	0.16	-
26	0.00	0.00	0.00	0.00	-
27	0.00	0.00	0.00	2.04	-
28	0.00	0.00	0.12	0.01	-
29	0.00		0.01	0.13	-
30	0.00		0.00	0.19	-
31	0.00		0.00		-
Total	2.13	2.58	2.87	5.66	0.18

Table 37. Daily maximum and minimum air temperatures (°F) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and May 16, 2023.

Day	January		February		March		April		May	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	78	58	82	60	84	66	88	61	83	58
2	78	53	81	58	83	57	85	64	84	63
3	81	54	70	47	86	58	87	62	82	60
4	81	66	68	47	84	72	85	61	84	53
5	74	59	74	53	81	61	88	66	81	57
6	66	44	72	48	84	61	86	65	76	65
7	68	40	74	46	86	61	85	63	82	61
8	74	42	77	50	71	52	85	63	88	59
9	73	49	81	59	74	49	70	58	85	65
10	68	44	82	66	81	55	70	64	89	68
11	74	40	73	64	77	53	76	59	87	74
12	77	45	66	53	82	49	75	61	86	71
13	64	45	69	45	72	59	87	68	83	67
14	51	38	75	41	67	49	85	65	86	65
15	58	34	80	50	61	42	86	62	85	64
16	66	33	82	57	71	38	88	66	89	66
17	75	36	85	59	80	48	77	56	-	-
18	78	52	63	45	77	52	77	49	-	-
19	81	53	79	50	63	47	80	51	-	-
20	76	51	79	55	61	42	81	56	-	-
21	62	49	82	62	71	41	81	57	-	-
22	79	58	85	61	77	54	87	65	-	-
23	64	49	86	59	84	54	78	61	-	-
24	68	44	86	63	86	54	79	61	-	-
25	82	57	84	60	88	62	79	63	-	-
26	63	43	84	58	89	67	83	63	-	-
27	60	38	82	61	89	63	83	65	-	-
28	63	40	86	68	83	45	86	64	-	-
29	79	56			70	58	88	69	-	-
30	85	59			74	51	79	68	-	-
31	84	60			83	56			-	-
Avg.	72	48	78	55	78	54	82	62	84	63

Appendix 2. Data from FAWN for Apr. 27, 2023

FAWN Station	Observation Time	2m T air (F)	2m Rain (in)	10m Wind max (mph)	
Hastings	Apr 27 2023 5:15 PM	65.03	0.98	54.5	golfball to baseball size hail
Hastings	Apr 27 2023 5:30 PM	65.77	0.76	40.2	
Hastings	Apr 27 2023 5:45 PM	67.98	0	28.2	
Hastings	Apr 27 2023 6:00 PM	68.45	0.02	22.4	
Hastings	Apr 27 2023 6:15 PM	68.95	0.04	18.3	
Hastings	Apr 27 2023 6:30 PM	68.88	0	16.8	
Hastings	Apr 27 2023 6:45 PM	69.33	0	16.5	
Hastings	Apr 27 2023 7:00 PM	70.77	0	16.5	
Hastings	Apr 27 2023 7:15 PM	71.2	0	16.9	
Hastings	Apr 27 2023 7:30 PM	71.4	0	16.1	
Hastings	Apr 27 2023 7:45 PM	71.47	0	14.7	
Hastings	Apr 27 2023 8:00 PM	71.6	0	13.9	
Hastings	Apr 27 2023 8:15 PM	71.87	0	16.3	
Hastings	Apr 27 2023 8:30 PM	71.85	0	12.4	
Hastings	Apr 27 2023 8:45 PM	71.94	0	10	
Hastings	Apr 27 2023 9:00 PM	71.98	0	9.7	
Hastings	Apr 27 2023 9:15 PM	72.16	0	7.8	
Hastings	Apr 27 2023 9:30 PM	72.14	0	8	
Hastings	Apr 27 2023 9:45 PM	71.92	0.02	9.7	
Hastings	Apr 27 2023 10:00 PM	71.87	0	9.7	
Hastings	Apr 27 2023 10:15 PM	69.08	0.18	28.3	
Hastings	Apr 27 2023 10:30 PM	68.32	0.03	22	
Hastings	Apr 27 2023 10:45 PM	67.66	0.01	13.6	
Total			2.04		

Note: 1.89" in our NOAA standard 8" rain gauge.

Appendix 3. Potato vines affected by hailstorm on Apr. 27, 2023

