

Florida Potato Variety Trial Report, 2020



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Florida Potato Variety Trial Report, 2020

Editors

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Photograph

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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, 2019. Potato beds were fumigated with Telone II C35, 7.7 gal/A (1,3-dichloropropene 63.4%, and chloropicrin 34.7%) in December 2019. 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 not removed due to COVID-19 restrictions and 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), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC), and enlarged lenticel.

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

Seasonal Weather and Growing Conditions

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

Growing conditions for the 2020 growing season were rated as good. The total precipitation between planting and harvest was 8.18" with most occurring late in the season and not much during vegetative growth, tuber initiation and bulking stages (Table 30). Overall air temperatures were below normal for the season (Table 31). There were no freeze events during 2020.

Production

There were no major changes to the production system in 2020.

Figure 1. Potato Variety Program Evaluation Flowchart.

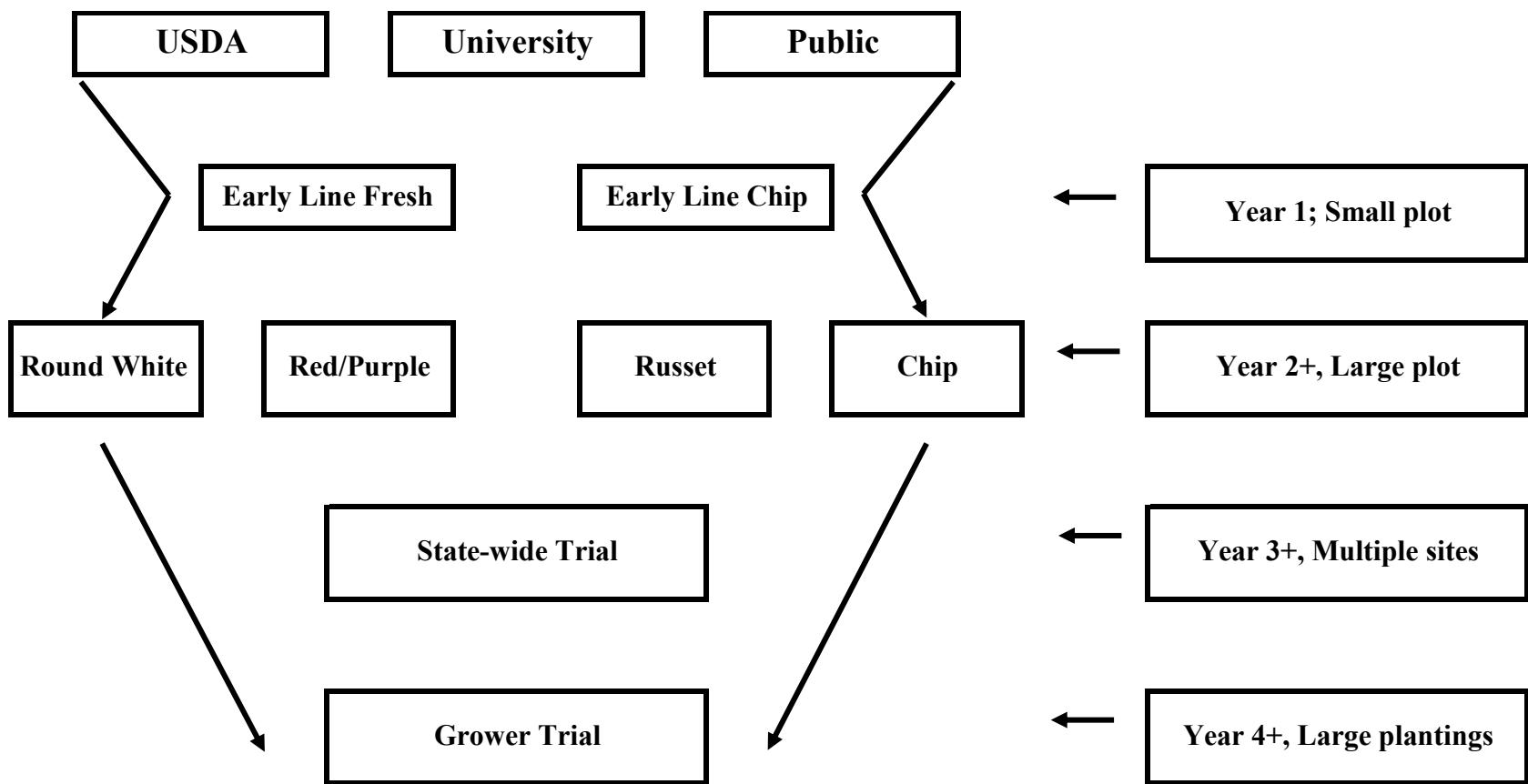


Table 1. Plant growth characteristics.

Rating	Early Vigor		Vine Maturity
	(plant height)	Vine Type	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 2019.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 6, 2020
Vine Kill Date	N/A
Harvest Date	May 19, 2020
Season Length	103 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	55
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	5 ft 4 in (1.6 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	BNC973-2 (607 cwt/acre or 68.0 T/ha)
Highest Marketable Yield	BNC973-2 (586 cwt/acre or 65.7 T/ha)
Best Appearance Rating	BNC990-2 (9, excellent)

Table 3. Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-103 days</u>												
BNC958-1	132	86	20	18	17	41	24	0	0	65	24	1.069
BNC959-2	527	445	103	4	12	39	45	0	0	84	45	1.075
BNC960-7	302	280	64	4	4	28	65	0	0	93	65	1.082
BNC961-1	487	405	93	4	13	27	56	0	0	83	56	1.083
BNC964-1	268	240	55	3	8	21	69	0	0	90	69	1.071
BNC965-1	235	165	38	6	24	36	34	0	0	70	34	1.064
BNC967-2	584	514	118	4	8	28	51	9	0	88	60	1.068
BNC969-1	407	385	89	3	3	25	32	38	0	95	70	1.064
BNC973-2	607	586	135	1	2	21	76	0	0	97	76	1.080
BNC973-5	470	451	104	1	3	24	72	0	0	96	72	1.078
BNC973-7	501	472	109	2	4	11	65	18	0	94	83	1.072
BNC974-1	555	511	118	1	7	15	77	0	0	92	77	1.071
BNC976-4	398	365	84	4	4	47	45	0	0	92	45	1.081
BNC977-2	508	449	103	5	7	26	62	0	0	88	62	1.073
BNC979-1	443	415	96	3	3	50	36	9	0	94	44	1.059
BNC981-1	603	568	131	3	3	45	49	0	0	94	49	1.079
BNC990-1	451	399	92	3	8	40	48	0	0	88	48	1.057
BNC990-2	332	239	55	4	24	54	18	0	0	72	18	1.063
BNC990-4	436	342	79	2	19	58	20	0	0	78	20	1.063
BNC992-1	350	321	74	7	2	50	42	0	0	92	42	1.068
B3451-4	318	259	60	7	12	53	28	0	0	81	28	1.086
B3451-7	401	288	66	9	19	53	19	0	0	72	19	1.088
B3451-8	377	323	75	6	8	44	42	0	0	86	42	1.084
B3453-2	283	232	53	6	12	20	56	6	0	82	62	1.076
B3453-5	396	354	82	3	7	38	41	10	0	89	51	1.088
B3455-1	347	270	62	10	12	27	51	0	0	78	51	1.071
B3460-1	223	192	44	7	7	41	46	0	0	86	46	1.067
B3463-4	350	314	72	3	8	51	39	0	0	90	39	1.064
B3465-3	387	322	74	5	12	52	31	0	0	83	31	1.072
B3465-4	461	410	95	5	6	47	42	0	0	89	42	1.067

Table 3 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
B3465-6	562	491	113	8	5	50	37	0	0	87	37	1.061
B3465-7	325	260	60	9	11	64	16	0	0	80	16	1.057
B3467-1	569	547	126	1	3	27	57	12	0	96	69	1.062
B3470-2	503	404	93	5	14	42	33	5	0	80	38	1.083
B3471-1	458	343	79	14	11	53	22	0	0	75	22	1.072
B3472-1	406	336	78	10	7	39	38	6	0	83	44	1.071
B3475-2	489	470	108	0	4	34	60	2	0	96	63	1.064
B3476-3	359	252	58	7	22	61	9	0	0	70	9	1.070
B3477-2	521	453	104	4	9	73	14	0	0	87	14	1.060
B3477-4	203	150	35	15	11	74	0	0	0	74	0	1.060
B3478-1	318	259	60	7	11	61	21	0	0	81	21	1.065
B3478-3	317	274	63	7	7	73	14	0	0	87	14	1.072
B3479-2	459	431	99	3	4	34	51	9	0	94	60	1.077
B3480-1	485	456	105	4	3	44	50	0	0	94	50	1.074
B3480-4	562	500	115	4	7	37	52	0	0	89	52	1.081
B3480-5	427	376	87	4	8	59	29	0	0	88	29	1.073
B3480-6	463	397	92	7	7	42	44	0	0	86	44	1.064
B3480-7	374	301	69	8	11	57	24	0	0	81	24	1.080
B3480-15	444	380	88	5	9	53	33	0	0	86	33	1.079
B3480-16	456	420	97	3	5	55	37	0	0	92	37	1.073
B3481-1	346	320	74	3	5	41	52	0	0	92	52	1.082
B3482-1	374	300	69	13	7	57	23	0	0	80	23	1.070
B3482-4	366	317	73	4	9	53	34	0	0	87	34	1.078
B3483-1	327	201	46	16	22	57	4	0	0	61	4	1.070
B3484-1	453	401	92	4	7	55	34	0	0	89	34	1.079
Atlantic	470	434	100	3	5	55	37	0	0	92	37	1.082
Harley Blackwell (B0564-8)	393	322	74	5	13	41	41	0	0	82	41	1.069
Snowden	524	472	109	3	7	36	43	10	0	90	54	1.081
Peter Wilcox (B1816-5)	498	321	74	8	28	50	14	0	0	64	14	1.066
Soraya	421	357	82	5	11	57	28	0	0	85	28	1.066

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 2020 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
BNC958-1	100	6	9	6					6	4
BNC959-2	100	7	9	6					7	1
BNC960-7	88	5	9	7					7	3
BNC961-1	100	5	9	8					7	1
BNC964-1	88	4	9	8					5	3
BNC965-1	88	5	9	7					7	4
BNC967-2	100	5	9	7					6	1
BNC969-1	50	6	9	9						3
BNC973-2	100	5	9	8					7	1
BNC973-5	100	5	9	8					8	1
BNC973-7	88	4	9	8					6	1
BNC974-1	100	8	9	6					6	1
BNC976-4	88	5	9	8						2
BNC977-2	88	4	9	7					7	1
BNC979-1	100	6	9	8					6	1
BNC981-1	100	6	9	6					7	1
BNC990-1	88	6	9	6					7	1
BNC990-2	88	6	9	5					9	3
BNC990-4	100	5	9	6					7	2
BNC992-1	100	5	9	5					8	3
B3451-4	63	4	9	7					6	3
B3451-7	100	4	9	6					5	3
B3451-8	88	4	9	6						2
B3453-2	88	4	9	7					6	4
B3453-5	88	6	9	6					6	2
B3455-1	100	5	9	6						3
B3460-1	100	4	9	7					8	4
B3463-4	100	5	9	6					7	2
B3465-3	100	5	9	5					6	2
B3465-4	75	6	9	6					7	1

Table 4 (cont'd). Plant growth and tuber characteristics for the 2020 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
B3465-6	88	5	9	6						7	1
B3465-7	100	5	9	5						7	3
B3467-1	75	5	9	7						6	1
B3470-2	88	5	9	7						6	1
B3471-1	88	4	9	7						7	2
B3472-1	100	6	9	5						6	2
B3475-2	100	7	9	5						6	3
B3476-3	75	8	9	5						6	3
B3477-2	88	7	9	5						7	1
B3477-4	100	6	9	4						7	4
B3478-1	100	4	9	6						6	3
B3478-3	63	6	9	7						7	3
B3479-2	88	9	9	6						6	1
B3480-1	100	5	9	7						8	1
B3480-4	100	6	9	6						8	1
B3480-5	88	6	9	6						7	1
B3480-6	75	5	9	7						6	1
B3480-7	75	6	9	5						7	3
B3480-15	75	6	9	6						8	1
B3480-16	75	7	9	7						8	1
B3481-1	88	4	9	7						6	2
B3482-1	100	7	9	5						7	3
B3482-4	88	6	9	5						6	2
B3483-1	75	8	9	4						8	4
B3484-1	88	7	9	8						6	1
Atlantic	75	6	9	7						7	-
Harley Blackwell (B0564-8)	100	5	9	6						7	2
Snowden	88	5	9	7						7	1
Peter Wilcox (B1816-5)	100	5	9	5						6	2
Soraya	88	5	9	6						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 2020 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²					
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC958-1					0	0	0	0	0	0	0
BNC959-2					0	0	0	0	0	0	0
BNC960-7					0	0	0	0	0	0	0
BNC961-1					0	0	0	0	0	0	0
BNC964-1					0	10	0	0	0	10	10
BNC965-1					0	10	0	0	0	0	0
BNC967-2					0	0	0	0	0	0	0
BNC969-1					0	0	0	0	0	40	0
BNC973-2					0	0	0	0	0	0	0
BNC973-5					0	0	0	0	0	0	0
BNC973-7					0	0	0	0	0	0	0
BNC974-1					0	0	0	0	0	0	0
BNC976-4					0	0	0	0	0	0	0
BNC977-2					0	0	0	0	0	0	0
BNC979-1					0	0	0	0	0	0	0
BNC981-1					0	0	0	0	0	0	0
BNC990-1					0	0	0	0	0	0	0
BNC990-2					0	0	0	0	0	0	0
BNC990-4					0	0	0	0	0	0	0
BNC992-1					0	30	0	0	0	0	0
B3451-4					0	0	0	0	0	0	0
B3451-7					0	0	0	0	0	0	0
B3451-8					0	0	0	0	0	0	0
B3453-2					0	0	0	0	0	0	0
B3453-5					0	0	0	0	0	0	0
B3455-1					0	10	0	0	0	0	0
B3460-1					0	10	0	0	0	0	0
B3463-4					0	0	0	0	0	0	0
B3465-3					0	0	0	0	0	0	0
B3465-4					0	0	0	0	0	0	0

Table 5 (cont'd). External and internal defects for the 2020 USDA 2nd Year Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²					
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
B3465-6					0	0	0	0	0	0	0
B3465-7					0	0	0	0	0	0	0
B3467-1					0	0	0	0	0	0	0
B3470-2					0	0	0	0	0	0	0
B3471-1					0	0	0	0	0	0	0
B3472-1					0	0	0	0	0	0	0
B3475-2					0	0	0	0	30	0	0
B3476-3					0	0	0	0	0	0	0
B3477-2					0	0	0	0	0	0	0
B3477-4					0	0	0	0	0	0	0
B3478-1					0	0	0	0	0	0	0
B3478-3					0	0	0	0	0	0	0
B3479-2					0	0	0	0	0	0	0
B3480-1					0	0	0	0	0	0	0
B3480-4					0	0	0	0	0	0	0
B3480-5					0	0	0	0	0	0	0
B3480-6					0	0	0	0	0	0	0
B3480-7					0	0	0	0	0	0	0
B3480-15					0	0	0	0	0	0	0
B3480-16					0	0	0	0	0	0	0
B3481-1					0	0	0	0	0	0	0
B3482-1					0	0	0	0	0	0	0
B3482-4					0	0	0	0	0	0	0
B3483-1					0	0	0	0	0	0	0
B3484-1					0	0	0	0	0	0	0
Atlantic					0	0	0	0	0	0	0
Harley Blackwell (B0564-8)					0	0	0	0	0	0	0
Snowden					0	0	0	0	0	0	0
Peter Wilcox (B1816-5)					0	0	0	0	0	0	0
Soraya					0	0	0	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), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 3. USDA 3rd Year Potato Variety Trial

General Comments

A goal of the 3rd year USDA trial is to continue evaluating new clones for production potential in Florida. The entries in this trial were selected from the 2nd year clone trial conducted in 2019.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	January 29, 2020
Vine Kill Date	N/A
Harvest Date	May 13, 2020
Season Length	105 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	10
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	Soraya (327 cwt/acre or 36.7 T/ha)
Highest Marketable Yield	Soraya (273 cwt/acre or 30.6 T/ha)
Best Appearance Rating	Soraya (9, excellent)

Table 6. Production statistics for the 2020 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-105 days</u>												
BNC902-2	118	72	29	19	20	48	13	0	0	61	13	1.061
BNC902-3	263	193	77	5	22	31	43	0	0	73	43	1.064
BNC904-1	185	139	55	7	18	43	31	0	0	75	31	1.069
BNC916-3	228	143	57	18	19	51	11	0	0	63	11	1.064
BNC917-2	250	186	74	9	16	36	39	0	0	74	39	1.055
BD1501-1	120	7	3	72	22	6	0	0	0	6	0	1.081
BD1505-4	62	0	0	100	0	0	0	0	0	0	0	1.080
BD1560-1	160	3	1	86	12	2	0	0	0	2	0	1.078
BD1568-1	112	23	9	68	11	20	0	0	0	20	0	1.085
BD1569-5	81	3	1	66	30	4	0	0	0	4	0	1.084
Atlantic	261	251	100	2	2	14	77	5	0	96	82	1.067
Harley Blackwell (B0564-8)	198	153	61	12	11	18	48	11	0	77	59	1.058
Snowden	276	251	100	4	5	24	67	0	0	91	67	1.069
Peter Wilcox (B1816-5)	297	195	78	11	24	45	21	0	0	66	21	1.060
Soraya	327	273	109	6	10	34	50	0	0	83	50	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 7. Plant growth and tuber characteristics for the 2020 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
BNC902-2	88	6	9	6						6	4
BNC902-3	83	5	9	6						8	3
BNC904-1	79	6	9	7						7	4
BNC916-3	75	6	9	5						7	4
BNC917-2	88	5	9	6						7	2
BD1501-1	83	8	6	6						6	4
BD1505-4	88	5	9	7						7	4
BD1560-1	88	6	9	7						8	4
BD1568-1	83	6	9	4						6	4
BD1569-5	88	5	9	6						7	4
Atlantic	71	5	9	7						7	-
Harley Blackwell (B0564-8)	67	5	9	6						8	4
Snowden	75	6	9	7						8	1
Peter Wilcox (B1816-5)	79	5	9	6						6	2
Soraya	88	5	9	7						9	1

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 8. External and internal defects for the 2020 USDA 3rd Year Trial potato selections.

Clone	% External Tuber Defects						% Internal Defects ²				
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC902-2					0	0	0	0	60	0	
BNC902-3					0	0	0	0	10	0	
BNC904-1					0	0	0	0	20	0	
BNC916-3					0	0	0	0	90	0	
BNC917-2					0	0	0	0	0	0	
BD1501-1					0	0	0	0	0	0	
BD1505-4					0	0	0	0	10	0	
BD1560-1					0	0	0	0	40	0	
BD1568-1					0	0	0	0	30	0	
BD1569-5					0	0	0	0	40	0	
Atlantic					0	30	0	0	10	0	
Harley Blackwell (B0564-8)					0	0	0	0	20	0	
Snowden					0	0	0	0	0	0	
Peter Wilcox (B1816-5)					0	0	0	0	0	0	
Soraya					0	0	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), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

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

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 17, 2020
Vine Kill Date	May 17, 2020
Harvest Date	June 1, 2020
Season Length	90 days planting to vine kill; 105 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	29 (Standard: Red LaSoda)
Number of Clones	11
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	3 (1 or 2 for some clones)
Plot Size	20 ft (6.1 m)

Production Statistics

Early Vigor Ratings	43 DAP
Highest Total Yield	Goldrush (323 cwt/acre or 36.2 T/ha)
Highest Marketable Yield	Soraya (249 cwt/acre or 27.9 T/ha)
Best Appearance Rating	Carolina, Cerata, NCB2607-3 (9, excellent)

Table 9. Production statistics for the 2020 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	
		% of standard		C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-90 days</u>												
<u>1 rep (not included in analysis)</u>												
PSS11/19/54YY	209	63	29	25	45	24	6	0	0	30	6	1.054
PSS13/041/8RW	246	119	54	26	25	42	7	0	0	49	7	1.073
PSS13/041/20RW	192	33	15	44	39	15	3	0	0	17	3	1.069
PSS13/042/15RW	250	129	58	20	29	42	9	0	0	52	9	1.067
<u>2 reps</u>												
Almera	207	165	75	8	14	35	43	0	0	77	43	1.053
Carolina	270	203	92	7	18	44	32	0	0	75	32	1.051
Cerata	266	174	79	15	20	43	23	0	0	65	23	1.060
Kelly	235	128	58	13	31	44	11	1	0	56	12	1.063
Malou	156	87	39	18	27	33	21	0	0	55	21	1.052
Whitney	67	28	13	25	33	39	2	0	0	42	2	1.054
PSS09/118/6YY	284	164	74	15	28	37	20	1	0	58	21	1.048
PSS09/118/21YY	271	102	46	28	34	27	11	0	0	38	11	1.042
PSS10/177/9YY	204	75	34	32	32	17	19	1	0	37	20	1.058
PSS13/041/2RW	251	92	42	36	30	13	21	0	0	34	21	1.075
<u>3 reps</u>												
NC587-10	196	51	23	40	36	20	4	0	0	24	4	1.065
NC708-3	280	211	96	7	18	36	38	1	0	75	39	1.066
NCB2607-3	163	74	33	26	30	34	9	0	0	43	9	1.068
Allora	267	160	73	13	27	46	14	0	0	60	14	1.061
Arizona	248	198	90	10	11	35	41	3	0	79	44	1.049
Constance	283	169	76	14	28	43	14	0	0	58	14	1.062
Paroli	137	71	32	14	36	33	17	0	0	50	17	1.056
Alegria	278	226	102	6	12	39	43	0	0	82	43	1.059
Paroli	197	124	56	13	26	35	26	0	0	61	26	1.059
Soraya	311	223	101	10	19	38	32	1	0	71	33	1.054

Table 9 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
Baby Lou	192	51	23	46	27	17	9	0	0	26	9	1.059
Peela	179	38	17	41	39	16	4	0	0	20	4	1.061
Prada	264	216	98	5	13	58	24	0	0	82	24	1.048
Adirondack Blue	243	200	91	5	12	44	38	1	0	83	39	1.060
All Blue	213	60	27	30	43	25	2	0	0	28	2	1.063
Chieftain	194	171	77	4	8	32	55	1	0	88	56	1.059
Dark Red Norland	237	177	80	13	13	36	37	0	0	74	37	1.062
French Fingerling	195	89	40	24	30	42	4	0	0	46	4	1.064
Goldrush	323	211	96	15	18	39	22	5	0	66	27	1.055
Lamoka	205	170	77	6	11	30	52	0	0	82	52	1.063
Peter Wilcox (B1816-5)	291	133	60	20	35	35	10	0	0	45	10	1.063
Pike	219	175	79	10	14	23	52	2	0	76	53	1.066
Red LaSoda	247	221	100	4	7	39	51	0	0	90	51	1.054
Satina	254	211	96	7	10	32	51	0	0	83	51	1.054
Soraya	314	249	113	6	15	45	32	2	0	79	34	1.057
Yukon Gold	220	198	89	5	6	21	65	3	0	90	68	1.068
MSD ³	99	78		10	9	13	18	ns	ns	15	18	0.006
P Value	0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.8513	-	<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 Waller-Duncan K-ratio t Test.

Table 10. Plant growth and tuber characteristics for the 2020 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
1 rep (not included in analysis)										
PSS11/19/54YY	93	8	6	6	4	8	9	2	7	8
PSS13/041/8RW	93	8	6	6	1	2	8	2	7	7
PSS13/041/20RW	90	8	6	6	1	2	9	2	6	8
PSS13/042/15RW	97	8	6	6	1	2	9	3	7	8
2 reps										
Almera	67	8	6	6	1	8	9	6	8	7
Carolina	87	8	6	6	1	3	9	6	9	9
Cerata	87	9	6	6	1	3	9	3	7	9
Kelly	90	9	8	7	1	8	9	6	8	7
Malou	88	8	6	4	3	8	9	3	7	8
Whitney	72	7	6	2	1	8	9	3	7	7
PSS09/118/6YY	85	9	6	6	3	8	9	4	9	7
PSS09/118/21YY	80	8	6	5	3	8	9	6	9	6
PSS10/177/9YY	93	9	6	4	4	8	9	6	7	6
PSS13/041/2RW	83	9	6	7	1	2	8	1	6	8
3 reps										
NC587-10	89	8	6	6	3	8	8	3	7	7
NC708-3	83	8	6	7	3	8	8	6	6	7
NCB2607-3	89	7	6	5	3	2	8	3	8	9
Allora	77	9	6	6	1	8	9	6	8	8
Arizona	70	8	6	6	1	8	8	6	8	8
Constance	90	9	6	7	3	8	9	4	9	8
Paroli	91	8	6	3	3	8	9	3	8	6
Alegria	94	9	6	6	1	8	9	6	9	7
Paroli	96	7	6	3	3	8	9	3	8	6
Soraya	87	9	7	7	3	8	8	3	7	8

Table 10 (cont'd). Plant growth and tuber characteristics for the 2020 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
Baby Lou	94	8	6	5	3	8	8	4	8	6
Peela	83	8	6	6	3	8	8	3	9	7
Prada	84	8	6	5	3	8	8	6	8	6
Adirondack Blue	84	8	6	5	9	1	8	6	6	6
All Blue	90	9	6	6	9	1	8	6	6	6
Chieftain	82	9	8	6	1	2	8	3	9	6
Dark Red Norland	90	8	6	6	1	2	9	3	8	6
French Fingerling	88	9	6	5	3	3	9	7	8	8
Goldrush	89	9	6	6	1	5	3	7	9	8
Lamoka	86	9	6	7	1	8	8	3	9	7
Peter Wilcox (B1816-5)	96	8	6	5	3	1	8	3	8	7
Pike	90	9	7	6	1	8	8	2	8	8
Red LaSoda	92	8	6	6	1	2	8	3	6	7
Satina	88	9	8	6	3	8	9	3	8	8
Soraya	90	9	7	6	3	8	8	3	7	8
Yukon Gold	80	9	6	6	3	8	8	3	8	8

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 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
1 rep (not included in analysis)											
PSS11/19/54YY					0	0	0	0	0	0	0
PSS13/041/8RW					0	0	0	0	0	0	0
PSS13/041/20RW					0	0	0	0	0	0	0
PSS13/042/15RW					0	0	0	0	0	0	0
2 reps											
Almera					0	0	0	0	0	0	0
Carolina					0	0	0	0	0	0	0
Cerata					0	0	0	0	25	10	
Kelly					0	0	0	0	0	0	0
Malou					0	0	0	0	0	0	10
Whitney					0	0	0	0	0	0	0
PSS09/118/6YY					0	0	0	0	0	0	0
PSS09/118/21YY					0	0	0	0	20	0	0
PSS10/177/9YY					0	0	0	0	0	0	0
PSS13/041/2RW					0	0	0	0	0	0	0
3 reps											
NC587-10					0	3	0	0	3	3	
NC708-3					0	0	0	0	0	0	0
NCB2607-3					0	0	0	0	0	0	0
Allora					0	0	0	0	0	0	0
Arizona					0	0	0	0	0	0	0
Constance					0	0	0	0	3	0	
Paroli					0	0	0	0	0	0	0
Alegria					0	0	0	0	0	0	0
Paroli					0	0	0	0	0	0	0
Soraya					0	0	0	0	0	0	0

Table 11 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Baby Lou					0	0	0	0	0	0	0
Peela					0	0	0	0	0	0	0
Prada					0	0	0	0	0	0	0
Adirondack Blue					0	0	0	0	0	0	3
All Blue					0	0	0	0	0	0	0
Chieftain					0	0	0	0	0	0	0
Dark Red Norland					0	0	0	0	0	0	0
French Fingerling					0	0	0	0	0	0	0
Goldrush					0	0	0	0	0	0	0
Lamoka					0	0	0	0	0	0	0
Peter Wilcox (B1816-5)					0	0	0	0	0	0	0
Pike					0	0	0	0	0	0	0
Red LaSoda					0	0	0	0	0	0	0
Satina					0	0	0	0	0	0	0
Soraya					0	0	0	0	0	0	0
Yukon Gold					0	0	0	0	0	0	0
MSD ³					ns	ns	ns	ns	11	5	
P Value					-	0.6746	-	-	0.0042	0.0023	

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

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

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

Chapter 5. University of Maine Advanced Selection Potato Variety Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 17, 2020
Vine Kill Date	May 17, 2020
Harvest Date	June 1, 2020
Season Length	90 days planting to vine kill; 105 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	19
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	43 DAP
Highest Total Yield	AF6289-2 (306 cwt/acre or 34.3 T/ha)
Highest Marketable Yield	AF6289-2 (242 cwt/acre or 27.1 T/ha)
Best Appearance Rating	Atlantic, NDAF113484B-1, NDAF12143-1, NDAF14424-1, AF6199-5, AF6194-4, NDAF13296Y-4 (8, very good)

Table 12. Production statistics for the 2020 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	
Season-90 days												
Atlantic	261	233	100	3	8	25	64	0	0	89	64	1.075
Harley Blackwell (B0564-8)	228	169	73	10	16	24	49	1	0	74	50	1.067
Snowden	264	225	97	4	11	23	61	1	0	85	62	1.069
Yukon Gold	209	184	79	5	9	24	61	2	0	87	62	1.071
MSAFB609-12	280	214	92	7	16	35	41	0	0	76	41	1.075
NDAF113484B-1	256	195	84	6	18	40	36	0	0	76	36	1.057
AF5819-2	264	191	82	10	19	25	46	0	0	72	46	1.064
NDAF12143-1	215	162	69	8	18	30	43	1	0	74	44	1.065
WAF14096-5	287	217	93	11	14	21	54	0	0	75	54	1.061
NDAF12238Y-2	272	185	79	9	23	35	31	1	0	68	32	1.064
NDAF14424-1	213	186	80	4	9	22	65	0	0	87	65	1.056
AF6199-5	244	188	81	8	16	41	36	0	0	76	36	1.065
AF6226-6	245	213	91	4	11	30	56	0	0	86	56	1.069
AF6194-4	250	233	100	3	4	23	70	0	0	93	70	1.069
AF6183-12	238	175	75	10	17	28	45	0	0	73	45	1.068
AF6287-6	210	124	53	13	28	33	26	0	0	59	26	1.062
AF6289-2	306	242	104	7	14	59	20	0	0	79	20	1.061
COAF14107-1	189	126	54	13	20	22	44	0	0	66	44	1.058
NDAF13136Y-5	220	152	65	9	23	46	22	1	0	69	23	1.063
NDAF13273-1	243	163	70	9	24	36	30	0	0	67	31	1.063
NDAF13296Y-3	224	193	83	5	9	27	58	2	0	86	59	1.065
NDAF13296Y-4	251	220	94	4	9	38	50	0	0	88	50	1.066
AF6286-1	251	138	59	17	28	35	20	0	0	55	20	1.056
MSD ³	106	107		7	11	16	24	ns	ns	16	24	0.008
P Value	0.0142	0.0006		<0.0001	<0.0001	<0.0001	<0.0001	0.6402	-	<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 2020 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	87	9	7	7						8	-
Harley Blackwell (B0564-8)	93	9	6	6						6	2
Snowden	90	9	7	6						7	2
Yukon Gold	84	9	8	6						7	2
MSAFB609-12	92	9	6	7						7	3
NDAF113484B-1	98	9	8	6						8	3
AF5819-2	90	8	6	5						7	3
NDAF12143-1	96	9	8	5						8	2
WAF14096-5	90	9	6	6						6	2
NDAF12238Y-2	91	9	6	7						6	2
NDAF14424-1	87	9	8	5						8	3
AF6199-5	84	8	6	8						8	3
AF6226-6	90	9	7	8						7	1
AF6194-4	87	9	8	7						8	2
AF6183-12	96	9	7	7						7	3
AF6287-6	93	8	7	5						6	4
AF6289-2	88	8	6	6						7	1
COAF14107-1	89	8	6	4						7	3
NDAF13136Y-5	89	8	8	6						6	4
NDAF13273-1	88	8	6	5						7	3
NDAF13296Y-3	79	9	7	6						7	2
NDAF13296Y-4	90	8	8	6						8	1
AF6286-1	93	9	6	5						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 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Atlantic					0	0	0	0	10	0	
Harley Blackwell (B0564-8)					0	0	0	0	0	0	
Snowden					0	0	0	0	5	0	
Yukon Gold					0	0	0	0	5	8	
MSAFB609-12					0	0	0	0	13	0	
NDAF113484B-1					0	3	0	5	33	0	
AF5819-2					0	0	0	0	8	0	
NDAF12143-1					0	3	0	0	0	0	
WAF14096-5					0	0	0	0	8	0	
NDAF12238Y-2					0	0	0	0	0	0	
NDAF14424-1					0	0	0	0	18	8	
AF6199-5					0	0	0	0	13	0	
AF6226-6					0	0	0	0	0	0	
AF6194-4					0	0	0	0	3	5	
AF6183-12					0	0	0	0	5	0	
AF6287-6					0	0	0	0	5	0	
AF6289-2					0	0	0	0	0	0	
COAF14107-1					0	0	0	0	3	5	
NDAF13136Y-5					0	0	0	0	13	0	
NDAF13273-1					0	0	0	0	15	0	
NDAF13296Y-3					0	0	0	0	0	0	
NDAF13296Y-4					0	0	0	0	3	3	
AF6286-1					0	0	0	0	0	0	
MSD ³					ns	ns	ns	ns	31	ns	
P Value					-	0.5464	-	0.4768	0.0355	0.2492	

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

²Percent tubers hollow heart (HH), brown rot (BR), 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 17, 2020
Vine Kill Date	May 17, 2020
Harvest Date	May 28, 2020
Season Length	90 days planting to vine kill; 101 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	50
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	AF6541-15 (387 cwt/acre or 43.4 T/ha)
Highest Marketable Yield	AF6594-4 (291 cwt/acre or 32.6 T/ha)
Best Appearance Rating	Satina, AF6530-4, AF6541-15, NDAF14114YCB-3 (9, excellent)

Table 15. Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-90 days</u>												
Red LaSoda	243	199	100	7	11	48	34	0	0	82	34	1.058
Peter Wilcox (B1816-5)	280	115	58	25	34	36	5	0	0	41	5	1.066
Soraya	290	230	115	7	14	49	30	0	0	79	30	1.063
Satina	262	203	102	9	13	29	49	0	0	78	49	1.054
Dark Red Norland	224	145	73	14	21	33	31	0	0	65	31	1.058
All Blue	225	32	16	56	29	13	2	0	0	14	2	1.069
AF6526-1	348	280	140	5	15	38	43	0	0	80	43	1.065
AF6530-4	281	98	49	25	41	28	7	0	0	35	7	1.071
AF6531-3	238	110	55	22	32	35	11	0	0	46	11	1.068
AF6541-3	230	131	66	13	31	32	25	0	0	57	25	1.071
AF6541-15	387	255	128	10	24	36	30	0	0	66	30	1.068
AF6542-16	231	94	47	39	20	37	3	0	0	41	3	1.071
AF6542-19	270	163	82	12	28	42	18	0	0	60	18	1.069
AF6543-2	222	140	70	16	21	23	40	0	0	63	40	1.070
AF6551-4	273	247	124	3	7	19	65	7	0	90	72	1.066
AF6553-3	276	216	109	8	14	35	43	0	0	79	43	1.064
AF6555-2	271	233	117	6	8	28	55	2	0	86	57	1.071
AF6562-1	272	219	110	7	12	32	49	0	0	81	49	1.073
AF6566-1	213	159	80	11	14	29	45	0	0	75	45	1.080
AF6572-3	158	70	35	31	24	32	13	0	0	45	13	1.063
AF6579-3	152	94	47	12	26	30	32	0	0	61	32	1.066
AF6585-1	273	209	105	8	16	45	32	0	0	77	32	1.073
AF6594-4	374	291	146	7	15	28	48	1	0	78	49	1.065
AF6602-10	330	209	105	11	26	35	26	2	0	63	29	1.072
AF6606-2	294	254	128	7	7	28	58	0	0	86	58	1.067
AF6607-1	281	224	112	5	15	33	45	2	0	80	47	1.049
WAF16134-2	304	244	123	7	13	28	52	0	0	80	52	1.081
WAF16220-2	336	255	128	7	18	23	53	0	0	76	53	1.062
WAF16220-4	276	200	100	10	17	37	35	0	0	73	35	1.075
NDAF1488-3	284	191	96	10	22	34	33	0	0	67	33	1.072

Table 15 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
NDAF1489-4	244	108	54	27	29	34	10	0	0	44	10	1.064
AF6601-2	303	225	113	10	16	41	33	0	0	74	33	1.078
AAF11546-3	283	197	99	10	21	55	15	0	0	70	15	1.059
COAF15129-3	338	205	103	13	27	33	27	0	0	61	27	1.051
NDAF14113Y-3	375	176	88	22	31	42	5	0	0	47	5	1.063
NDAF14114YCB-3	349	234	118	11	21	50	15	2	0	67	17	1.066
AAF11611-2	261	144	72	16	29	36	19	0	0	55	19	1.066
AF6436-1	211	136	68	13	22	54	10	0	0	64	10	1.064
AF6441-3	289	241	121	7	10	58	26	0	0	83	26	1.075
AF6443-12	199	135	68	7	25	46	22	0	0	68	22	1.066
AF6446-17	200	163	82	4	14	33	49	0	0	82	49	1.060
AF6455-21	374	235	118	11	26	48	15	0	0	63	15	1.070
AF6464-4	182	57	28	27	41	12	19	0	0	31	19	1.069
AF6465-7	246	118	59	20	33	35	12	0	0	48	12	1.061
AF6471-2	270	94	47	25	40	22	13	0	0	35	13	1.073
AF6488-5	296	211	106	5	23	32	39	0	0	71	39	1.067
AF6495-6	304	229	115	7	18	36	39	0	0	75	39	1.063
AF6495-16	230	121	61	22	26	32	20	0	0	53	20	1.075
AF6503-2	196	136	68	9	22	34	35	0	0	70	35	1.065
AF6506-4	314	250	126	7	13	45	34	0	0	80	34	1.056
AF6512-6	292	219	110	6	19	43	32	0	0	75	32	1.068
AAF12139-1	323	231	116	7	22	61	10	0	0	72	10	1.065
AAF12147-6	248	87	44	22	43	26	9	0	0	35	9	1.067
COAF15299-4	208	68	34	35	32	33	0	0	0	33	0	1.062
NDAF1415Y-2	274	228	114	6	11	37	44	2	0	83	46	1.069
AF6438-2	295	124	62	23	35	33	9	0	0	42	9	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 16. Plant growth and tuber characteristics for the 2020 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
Red LaSoda	100	8	6	5					7	-
Peter Wilcox (B1816-5)	96	8	6	5					8	3
Soraya	88	9	5	7					7	1
Satina	83	9	5	7					9	1
Dark Red Norland	100	7	6	5					8	2
All Blue	92	8	6	5					7	4
AF6526-1	79	9	5	5					6	1
AF6530-4	100	8	6	4					9	4
AF6531-3	96	9	5	4					8	3
AF6541-3	92	8	6	5					8	3
AF6541-15	88	9	6	3					9	1
AF6542-16	96	9	5	6					7	4
AF6542-19	83	8	6	3					5	2
AF6543-2	96	7	9	4					7	2
AF6551-4	79	8	9	7					7	1
AF6553-3	100	8	6	6					8	1
AF6555-2	96	9	6	6					7	1
AF6562-1	83	9	9	7					8	1
AF6566-1	92	9	6	6					7	2
AF6572-3	83	8	6	5					8	4
AF6579-3	83	7	9	7					5	4
AF6585-1	88	8	9	7					6	2
AF6594-4	88	9	9	6					5	1
AF6602-10	88	9	6	5					7	1
AF6606-2	83	8	6	6					7	1
AF6607-1	92	9	9	7					6	3
WAF16134-2	92	9	6	7					6	1
WAF16220-2	88	9	6	7					6	1
WAF16220-4	79	9	6	7					6	1
NDAF1488-3	92	9	6	7					7	2

Table 16 (cont'd). Plant growth and tuber characteristics for the 2020 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
NDAF1489-4	100	8	6	3						6	4
AF6601-2	92	9	6	6						7	1
AAF11546-3	92	8	6	5						8	1
COAF15129-3	88	9	6	5						6	1
NDAF14113Y-3	96	9	6	5						7	1
NDAF14114YCB-3	100	9	6	4						9	1
AAF11611-2	83	8	6	6						6	2
AF6436-1	100	8	6	4						7	3
AF6441-3	79	9	6	6						7	1
AF6443-12	83	8	6	3						7	3
AF6446-17	92	9	6	6						7	2
AF6455-21	100	8	6	6						7	1
AF6464-4	100	9	6	4						8	4
AF6465-7	96	8	6	3						7	3
AF6471-2	96	9	9	5						8	4
AF6488-5	92	8	9	8						8	1
AF6495-6	100	8	9	6						8	1
AF6495-16	96	9	6	7						7	3
AF6503-2	92	9	6	7						7	3
AF6506-4	88	9	6	8						7	2
AF6512-6	88	9	9	6						7	1
AAF12139-1	88	9	6	7						8	1
AAF12147-6	92	8	6	4						7	4
COAF15299-4	100	7	6	3						6	4
NDAF1415Y-2	88	9	6	6						5	1
AF6438-2	100	8	6	5						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 17. External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Red LaSoda					0	0	0	0	0	0	0
Peter Wilcox (B1816-5)					0	0	0	0	0	0	0
Soraya					0	0	0	0	0	0	0
Satina					0	0	0	0	0	0	0
Dark Red Norland					0	0	0	0	0	0	0
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All Blue					0	0	0	0	0	0	0
AF6526-1					0	0	0	0	0	0	0
AF6530-4					0	0	0	0	0	0	0
AF6531-3					0	0	0	0	0	0	0
AF6541-3					0	0	0	0	0	0	0
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AF6541-15					0	0	0	0	0	0	0
AF6542-16					0	0	0	0	0	0	0
AF6542-19					0	0	0	0	0	0	0
AF6543-2					0	0	0	0	0	0	0
AF6551-4					0	0	0	0	0	0	0
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AF6553-3					0	0	0	0	0	0	0
AF6555-2					0	0	0	0	0	0	0
AF6562-1					0	0	0	0	0	0	0
AF6566-1					0	0	0	0	0	0	0
AF6572-3					0	0	0	0	0	0	0
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AF6579-3					0	0	0	0	0	0	0
AF6585-1					0	10	0	0	0	0	0
AF6594-4					0	0	0	0	0	0	0
AF6602-10					0	0	0	0	0	0	0
AF6606-2					0	0	0	0	0	0	0
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AF6607-1					0	22	0	0	0	0	0
WAF16134-2					0	0	0	0	0	0	0
WAF16220-2					0	0	0	0	0	0	0
WAF16220-4					0	0	0	0	0	0	0
NDAF1488-3					0	10	0	0	0	0	0

Table 17 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
NDAF1489-4					0	0	0	0	0	0	0
AF6601-2					0	0	0	0	0	0	0
AAF11546-3					0	0	0	0	0	0	0
COAF15129-3					0	0	0	0	0	0	0
NDAF14113Y-3					0	0	0	0	0	0	0
NDCAF14114YCB-3					0	0	0	0	0	0	0
AAF11611-2					0	0	0	0	0	0	0
AF6436-1					0	0	0	0	0	0	0
AF6441-3					0	0	0	0	0	0	0
AF6443-12					0	0	0	0	0	0	0
AF6446-17					0	0	0	0	0	0	0
AF6455-21					0	0	0	0	0	0	0
AF6464-4					0	0	0	0	0	0	0
AF6465-7					0	0	0	0	0	0	0
AF6471-2					0	0	0	0	0	0	0
AF6488-5					0	0	0	0	0	0	0
AF6495-6					0	0	0	0	0	0	0
AF6495-16					0	0	0	0	0	0	0
AF6503-2					0	0	0	0	0	0	0
AF6506-4					0	10	0	0	0	0	0
AF6512-6					0	0	0	0	0	0	0
AAF12139-1					0	0	0	0	0	0	0
AAF12147-6					0	0	0	0	0	0	0
COAF15299-4					0	0	0	0	0	0	0
NDAF1415Y-2					0	0	0	0	0	0	0
AF6438-2					0	0	0	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), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 7. 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 6, 2020
Vine Kill Date	N/A
Harvest Date	May 18, 2020
Season Length	102 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	163
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1 replication for Tier 1 & 2 replications for Tier 2
Plot Size	10 ft (3.0 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	NDOR13315CB-3 (452 cwt/acre or 50.7 T/ha)
Highest Marketable Yield	NDOR13315CB-3 (436 cwt/acre or 48.9 T/ha)
Highest Specific Gravity	AOR13124-6 (1.097)

Table 18. Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
<u>Season-102 days</u>												
Atlantic	335	309	100	2	5	27	62	3	0	92	65	1.081
Lamoka	312	269	87	6	9	26	59	1	0	86	60	1.074
Pike	203	176	57	5	8	16	69	1	0	86	70	1.076
Snowden	352	301	98	4	10	27	59	0	0	86	59	1.074
<u>Tier 1 = 1 rep</u>												
CO13232-11W	276	203	66	12	14	28	45	0	0	73	45	1.074
CO13232-25W	358	284	92	5	15	44	35	0	0	79	35	1.065
CO13232-5W	276	219	71	5	16	42	37	0	0	79	37	1.066
A13125-3C	295	263	85	3	7	21	59	9	0	89	68	1.070
B2904-2	334	286	92	5	10	22	63	0	0	86	63	1.077
B3012-1	317	236	76	10	16	31	43	0	0	74	43	1.074
BNC549-1	326	207	67	14	23	36	11	16	0	63	27	1.073
B3296-3	268	220	71	8	9	15	54	13	0	82	67	1.071
B3306-2	308	215	70	10	20	38	32	0	0	70	32	1.069
B3317-1	292	261	85	5	6	64	26	0	0	89	26	1.066
BNC726-5	255	160	52	16	21	45	18	0	0	63	18	1.079
BNC742-2	293	185	60	12	25	41	22	0	0	63	22	1.070
BNC811-9	314	281	91	3	7	29	51	10	0	89	60	1.074
B3378-3	301	133	43	25	31	32	13	0	0	44	13	1.069
B3379-6	325	236	77	11	16	24	49	0	0	73	49	1.086
B3381-2	290	167	54	14	28	35	23	0	0	58	23	1.053
B3381-4	259	173	56	14	19	37	30	0	0	67	30	1.077
B3388-3	310	211	68	12	20	33	35	0	0	68	35	1.079
AF6165-9	331	275	89	7	10	33	50	0	0	83	50	1.086
AF6188-9	229	139	45	16	23	35	26	0	0	61	26	1.081
AF6197-8	292	235	76	5	14	36	45	0	0	81	45	1.078
AF6200-7	340	322	104	1	4	27	68	0	0	95	68	1.091
AF6206-5	425	356	115	7	10	35	44	4	0	84	49	1.080
AF6236-7	339	287	93	7	8	36	49	0	0	85	49	1.066
AF6237-3	350	282	91	6	14	60	21	0	0	81	21	1.082

Table 18 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
AF6253-1	302	235	76	8	15	42	35	0	0	78	35	1.077
AF6520-5	249	220	71	4	8	16	73	0	0	89	73	1.069
AF6522-1	262	103	33	30	31	35	4	0	0	39	4	1.081
AF6531-3	260	165	53	12	25	42	21	0	0	63	21	1.070
AF6542-1	298	174	56	16	25	34	25	0	0	58	25	1.093
AF6550-2	251	157	51	12	26	51	11	0	0	63	11	1.078
AF6551-1	316	275	89	3	10	26	61	0	0	87	61	1.074
AF6602-3	368	271	88	11	15	27	44	3	0	74	47	1.080
AF6603-5	276	220	71	6	14	20	59	0	0	80	59	1.074
AF6614-4	250	152	49	18	21	36	25	0	0	61	25	1.079
AF6616-1	282	139	45	16	34	38	12	0	0	49	12	1.071
AF6616-4	383	320	103	5	12	28	53	2	0	84	56	1.072
WAF15133-3	275	229	74	7	10	35	48	0	0	83	48	1.073
WAF15184-4	299	195	63	13	22	35	31	0	0	65	31	1.079
WAF15204-4	235	184	60	8	13	28	50	0	0	78	50	1.068
WAF15221-2	274	236	76	2	12	7	79	0	0	86	79	1.077
MSAA076-6	257	173	56	12	21	29	39	0	0	67	39	1.074
MSAA085-1	352	330	107	2	4	16	65	12	0	94	77	1.078
MSAA100-1	364	333	108	2	6	30	62	0	0	92	62	1.074
MSAA232-4	179	126	41	5	25	34	37	0	0	70	37	1.075
MSAA275-3	424	365	118	4	10	17	59	10	0	86	69	1.062
MSBB008-3	173	115	37	9	25	47	19	0	0	66	19	1.080
MSBB018-1	345	291	94	3	13	27	58	0	0	84	58	1.066
MSBB032-1	165	119	39	16	12	51	22	0	0	72	22	1.078
MSBB038-1	321	271	88	5	10	23	58	3	0	85	62	1.065
MSBB038-3	270	227	73	5	11	23	47	14	0	84	60	1.071
MSBB047-1	257	147	48	11	32	51	6	0	0	57	6	1.075
MSBB058-1	253	219	71	5	8	42	44	0	0	87	44	1.086
MSBB079-2	274	201	65	8	18	31	42	0	0	73	42	1.078
MSBB152-01	314	263	85	6	11	43	38	4	0	84	41	1.082

Table 18 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
MSBB190-1	387	361	117	2	4	17	50	27	0	93	76	1.062
MSBB190-2	286	218	71	5	18	28	49	0	0	76	49	1.066
MSBB193-1	313	255	83	6	12	31	50	0	0	81	50	1.062
MSBB222-1	339	312	101	4	4	21	70	1	0	92	71	1.075
MSBB230-2	361	300	97	5	12	24	50	8	0	83	59	1.071
MSBB610-13	288	267	86	3	4	23	69	0	0	92	69	1.081
MSBB614-10	310	284	92	4	4	16	75	0	0	91	75	1.070
MSBB617-2	378	317	103	1	8	12	63	9	7	84	72	1.080
MSBB618-9	303	271	88	5	6	19	59	12	0	89	70	1.068
MSBB623-12	256	139	45	10	36	32	22	0	0	54	22	1.069
MSBB625-2	235	152	49	15	20	35	29	0	0	65	29	1.082
MSBB633-18	241	223	72	2	6	10	61	23	0	93	83	1.079
MSBB634-8	198	185	60	5	2	22	68	3	0	94	71	1.066
MSBB635-14	374	345	112	2	6	16	64	13	0	92	77	1.071
MSCC009-1	225	186	60	4	14	21	62	0	0	83	62	1.072
MSCC058-1	242	211	68	4	9	24	60	3	0	87	63	1.073
MSCC081-1	226	174	56	6	16	39	38	0	0	77	38	1.078
MSCC168-1	360	316	102	4	8	19	62	6	0	88	68	1.052
MSCC248-3	280	219	71	8	14	31	48	0	0	78	48	1.077
MSCC256-02	335	276	89	5	13	44	39	0	0	82	39	1.077
MSCC266-1	359	324	105	2	8	42	48	0	0	90	48	1.068
MSCC376-1	216	206	67	1	4	33	62	0	0	95	62	1.071
MSDD085-13	225	140	45	12	26	47	15	0	0	62	15	1.077
MSX194-3	199	146	47	7	20	34	40	0	0	73	40	1.067
MSX472-2	366	291	94	6	15	28	49	3	0	80	52	1.064
MSZ248-02	395	336	109	5	10	26	59	0	0	85	59	1.072
MSZ248-10	159	132	43	4	13	40	43	0	0	83	43	1.075
NC727-6	382	280	91	7	19	40	33	0	0	73	33	1.066
NC733-7	318	270	87	5	10	41	43	0	0	85	43	1.073
NC744-4	206	107	35	14	34	42	7	3	0	52	10	1.059

Table 18 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
ND1336-5	232	188	61	7	12	55	26	0	0	81	26	1.077
ND14134Y-3	234	173	56	10	16	35	33	5	0	74	38	1.078
ND1462ABC-1a	348	313	101	3	7	32	58	0	0	90	58	1.059
NYR1-7	376	328	106	3	10	40	45	3	0	87	47	1.076
NYR10-4	338	218	71	13	22	37	27	0	0	65	27	1.074
NYR101-2	410	180	58	16	40	36	8	0	0	44	8	1.069
NYR101-7	301	265	86	2	10	24	64	0	0	88	64	1.080
NYR102-3	320	286	93	2	8	29	61	0	0	89	61	1.085
NYR102-7	398	350	113	3	9	45	40	3	0	88	42	1.090
NYR102-8	143	122	39	9	5	13	66	6	0	85	72	1.084
NYR105-11	388	342	111	5	7	23	65	0	0	88	65	1.076
NYR107-11	355	269	87	9	15	61	15	0	0	76	15	1.082
NYR107-4	338	209	68	10	28	39	23	0	0	62	23	1.083
NYR107-6	287	206	67	8	20	44	28	0	0	72	28	1.081
NYR17-1	332	299	97	6	4	21	59	10	0	90	69	1.072
NYR2-2	280	254	82	1	8	21	70	0	0	91	70	1.075
NYR3-5	406	330	107	7	11	40	42	0	0	81	42	1.082
NYR5-6	318	235	76	10	16	43	31	0	0	74	31	1.072
AOR13124-6	335	314	102	2	4	17	65	12	0	94	77	1.097
AOR13137-2	370	320	104	5	8	44	41	2	0	87	43	1.071
NDOR13315CB-3	452	436	141	1	3	19	75	2	0	96	77	1.086
NDOR13320CAB-2	278	176	57	8	29	21	42	0	0	63	42	1.084
NDOR1480Y-3	387	337	109	4	10	26	61	0	0	87	61	1.076
NYORN41-5	355	296	96	4	12	26	54	3	0	83	57	1.086
ATX07042-3W	261	144	47	20	25	33	23	0	0	55	23	1.067
ATX13134-3W/Y	266	161	52	15	25	36	24	0	0	60	24	1.075
COTX13231-1W	157	66	21	24	34	39	3	0	0	42	3	1.057
COTX13231-4W	212	153	50	15	13	29	43	0	0	72	43	1.065
NDTX1444-5W	203	101	33	18	32	36	14	0	0	50	14	1.089
NDTX1482YB-1W	286	103	33	30	34	28	8	0	0	36	8	1.081

Table 18 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
TX09403-15W	125	90	29	12	16	25	46	0	0	71	46	1.069
TX09403-21W	164	131	42	5	16	35	45	0	0	79	45	1.068
TX12484-3WZC	341	312	101	3	6	28	61	2	0	91	63	1.080
W14184-5	378	350	113	4	4	28	64	0	0	92	64	1.064
W14187-2	280	225	73	10	10	42	39	0	0	80	39	1.085
W14NYQ29-5	251	221	72	5	7	26	49	13	0	88	62	1.074
W14NYQ4-1	363	330	107	4	5	16	67	8	0	91	75	1.078
W14NYQ9-2	396	296	96	6	19	36	39	0	0	75	39	1.060
W15125-4	393	312	101	4	17	26	51	2	0	79	53	1.082
W15200-3	216	164	53	9	15	29	47	0	0	76	47	1.078
W15NYR11-13	369	260	84	9	21	36	32	3	0	71	35	1.067
W15NYR11-8	387	304	98	6	16	47	22	10	0	79	32	1.077
W15NYR5-2	182	88	28	13	39	42	6	0	0	48	6	1.074
<hr/>												
Tier 2 = 2 reps												
AC11453-7W	361	312	101	6	8	15	56	15	0	86	71	1.078
AC11494-6W	375	301	98	7	13	27	49	3	0	80	53	1.071
CO12235-3W	243	179	58	12	14	21	53	0	0	74	53	1.080
CO12293-1W	315	267	86	6	9	26	53	6	0	85	59	1.072
A11516-1C	394	322	104	6	12	42	40	0	0	82	40	1.070
AF6192-3	442	415	134	2	4	33	60	0	0	94	60	1.080
AF6200-4	327	296	96	4	6	43	46	1	0	90	47	1.080
AF6232-1	323	251	81	7	16	23	52	2	0	78	55	1.074
MSAFB605-4	311	266	86	4	11	29	55	2	0	85	56	1.077
MSAFB609-12	295	227	74	9	15	44	30	2	0	76	32	1.080
MSAFB609-5	260	198	64	8	16	33	41	2	0	76	42	1.078
MSAFB635-15	256	205	66	5	15	38	42	0	0	79	42	1.090
MSAFB635-3	276	221	72	6	14	29	51	0	0	80	51	1.083
MSAA091-1	271	206	67	7	17	50	26	0	0	76	26	1.067
MSAA217-3	289	245	79	5	11	20	60	5	0	84	64	1.088

Table 18 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
MSAA498-18	206	175	57	6	9	20	62	2	0	85	65	1.077
MSAA513-01	224	174	56	8	15	49	27	1	0	77	28	1.076
MSBB067-02	221	192	62	5	8	27	59	0	0	87	59	1.072
MSBB131-01	328	281	91	5	10	24	58	3	0	86	62	1.070
MSBB230-01	299	206	67	12	19	29	38	2	0	69	40	1.078
MSBB611-03	337	282	91	5	11	39	43	1	0	84	45	1.075
MSBB626-11	335	283	92	5	10	28	55	2	0	84	57	1.077
ND13220C-3	416	317	103	8	17	50	25	1	0	76	25	1.084
NY166	327	229	74	13	17	45	25	0	0	70	25	1.077
NY169	306	182	59	13	28	48	12	0	0	59	12	1.082
NYQ106-13	354	321	104	3	6	41	43	7	0	91	50	1.078
NYQ29-1	301	279	90	2	6	25	61	7	0	93	68	1.081
NYQ38-4	417	333	108	7	14	33	46	1	0	80	47	1.084
AOR12197-4	305	271	88	5	7	19	61	8	0	88	69	1.067
AOR13136-4	283	242	78	6	8	17	69	0	0	86	69	1.069
COOR13270-2	294	226	73	8	15	33	43	1	0	77	44	1.063
NYOR14Q9-5	360	339	110	2	4	21	58	15	0	94	73	1.074
NYOR14Q9-9	420	367	119	3	9	31	55	2	0	88	57	1.072
W12078-76	285	234	76	7	12	46	35	0	0	82	35	1.084

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 2020 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	93	7	9	7	1	6	7	3	7	7	1.0	1	2
Lamoka	97	7	9	7	1	8	8	3	7	6	1.0	1	2
Pike	72	5	9	8	1	8	9	2	7	7	1.1	1	3
Snowden	97	6	9	7	1	6	7	2	6	7	1.0	1	2
<hr/> Tier 1 = 1 rep <hr/>													
CO13232-11W	93	6	9	7	1	7	8	2	8	7	1.0	0	3
CO13232-25W	100	8	6	6	1	7	8	3	8	7	1.0	1	1
CO13232-5W	93	5	9	7	1	7	8	3	8	7	1.0	0	2
A13125-3C	93	6	9	8	1	8	9	3	7	7	1.0	0	1
B2904-2	93	7	9	7	1	7	7	3	7	7	1.0	1	1
B3012-1	93	5	9	7	1	7	7	3	6	6	1.5	2	2
BNC549-1	93	8	9	6	1	8	9	5	8	8	1.0	1	3
B3296-3	93	6	9	7	1	7	8	1	7	6	1.0	1	2
B3306-2	87	8	9	7	1	7	7	3	8	8	1.0	1	2
B3317-1	100	5	9	8	1	7	8	3	7	6	1.0	0	1
BNC726-5	100	8	6	6	1	7	8	1	8	5	1.0	1	4
BNC742-2	100	9	6	2	1	8	8	3	8	6	1.0	0	3
BNC811-9	87	6	9	8	1	6	7	2	7	7	1.0	1	3
B3378-3	100	8	9	4	3	7	7	3	6	8	1.0	1	4
B3379-6	100	9	9	4	3	8	8	1	6	7	1.0	2	2
B3381-2	100	9	9	5	1	6	8	2	7	8	1.0	2	4
B3381-4	100	9	9	6	3	7	8	2	8	7	1.5	1	3
B3388-3	100	8	6	6	1	8	9	2	8	8	1.0	1	3
AF6165-9	100	7	9	8	1	7	8	3	7	6	1.0	1	1
AF6188-9	100	4	9	7	1	8	8	2	6	7	1.0	1	4
AF6197-8	100	7	9	7	1	8	9	3	9	8	1.0	1	2
AF6200-7	93	6	9	8	1	7	7	3	7	7	1.0	1	3
AF6206-5	93	6	9	7	1	7	7	3	8	6	1.0	0	1
AF6236-7	100	6	9	8	1	8	8	2	9	7	1.0	1	1
AF6237-3	100	4	9	7	1	7	7	3	8	8	1.0	1	1

Table 19 (cont'd). Plant growth and tuber characteristics for the 2020 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					
AF6253-1	100	6	9	7	1	7	7	1	6	6	1.0	1	3		
AF6520-5	93	6	9	7	1	8	8	2	7	6	1.0	1	2		
AF6522-1	100	6	9	6	1	7	7	2	8	8	1.0	1	4		
AF6531-3	100	7	9	7	1	8	9	1	9	7	1.0	0	4		
AF6542-1	100	5	9	7	1	7	9	2	7	8	1.0	1	4		
AF6550-2	100	8	9	5	1	8	9	3	8	7	1.0	0	4		
AF6551-1	100	5	9	8	1	6	7	2	7	8	1.0	0	3		
AF6602-3	80	7	9	5	1	8	8	2	8	7	1.0	1	3		
AF6603-5	93	5	9	7	1	8	9	1	8	7	1.0	1	2		
AF6614-4	80	5	9	7	1	8	8	2	7	6	1.0	1	4		
AF6616-1	100	8	6	7	1	8	8	3	8	6	1.0	1	4		
AF6616-4	100	7	9	8	1	6	7	3	8	7	1.0	1	1		
WAF15133-3	93	7	9	7	1	7	7	2	7	6	1.0	1	2		
WAF15184-4	87	7	9	6	1	7	7	2	7	7	1.0	1	3		
WAF15204-4	93	5	9	8	1	7	7	1	7	7	1.0	1	3		
WAF15221-2	80	4	9	8	1	6	7	1	7	7	1.5	1	2		
MSAA076-6	87	6	9	7	1	8	8	1	7	7	1.0	1	3		
MSAA085-1	100	6	9	8	3	6	8	2	8	6	1.0	2	1		
MSAA100-1	100	7	9	7	1	6	6	3	6	8	1.0	1	1		
MSAA232-4	100	6	9	6	1	8	8	3	6	7	1.0	0	4		
MSAA275-3	87	7	6	6	1	8	9	3	8	7	1.0	1	1		
MSBB008-3	67	7	9	6	1	8	9	3	8	7	1.0	1	4		
MSBB018-1	87	5	9	7	1	7	8	2	7	7	1.0	1	1		
MSBB032-1	80	4	9	7	1	7	7	2	8	7	1.0	0	4		
MSBB038-1	100	5	9	8	1	6	7	1	8	6	1.5	2	1		
MSBB038-3	73	5	9	7	1	6	7	1	7	8	1.0	1	3		
MSBB047-1	93	7	9	6	1	8	8	2	8	8	1.0	1	4		
MSBB058-1	100	6	6	7	1	6	7	1	8	8	1.0	1	2		
MSBB079-2	100	7	9	6	1	8	8	2	8	6	1.0	1	3		
MSBB152-01	93	5	9	6	1	7	7	2	8	6	1.0	1	3		

Table 19 (cont'd). Plant growth and tuber characteristics for the 2020 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
MSBB190-1	100	6	9	7	1	6	7	1	7	7	1.0	1	1
MSBB190-2	87	8	9	7	1	7	8	2	7	6	1.0	0	2
MSBB193-1	100	8	9	6	3	6	6	1	8	8	1.0	1	2
MSBB222-1	73	6	9	8	1	6	7	2	7	6	1.0	1	1
MSBB230-2	87	7	9	7	1	6	7	2	8	6	1.0	0	1
MSBB610-13	100	6	9	7	1	8	8	1	9	7	1.0	0	1
MSBB614-10	87	6	9	7	1	6	7	2	8	8	1.0	0	1
MSBB617-2	100	7	9	7	1	6	6	1	8	7	1.0	1	1
MSBB618-9	100	4	9	8	1	7	7	2	7	6	1.0	1	3
MSBB623-12	100	8	9	5	1	6	7	1	7	8	1.0	1	4
MSBB625-2	100	6	9	7	1	6	7	2	7	8	1.0	2	4
MSBB633-18	100	6	9	7	1	7	7	2	7	7	1.0	0	2
MSBB634-8	67	5	9	8	1	7	7	1	6	7	1.0	1	3
MSBB635-14	100	5	9	8	1	6	8	2	7	6	1.0	1	1
MSCC009-1	93	5	9	7	1	6	7	1	8	7	1.0	1	3
MSCC058-1	100	7	9	6	1	7	8	2	7	7	1.0	1	4
MSCC081-1	73	8	9	7	1	8	8	3	9	7	1.0	0	4
MSCC168-1	87	5	9	7	1	7	8	3	7	8	1.0	1	1
MSCC248-3	80	6	9	7	1	6	5	3	8	8	1.0	1	2
MSCC256-02	100	6	9	7	1	6	5	2	7	7	1.0	2	1
MSCC266-1	100	6	9	8	1	6	7	4	8	7	1.0	0	1
MSCC376-1	73	4	9	7	1	6	6	1	6	8	1.0	0	3
MSDD085-13	87	9	9	6	1	8	8	2	8	7	1.0	1	4
MSX194-3	87	4	9	7	3	8	8	1	6	6	1.0	1	4
MSX472-2	93	7	9	7	1	7	8	2	8	7	1.0	0	2
MSZ248-02	93	5	9	7	1	6	7	3	8	6	1.0	2	1
MSZ248-10	53	6	9	7	1	6	5	2	7	7	1.0	1	4
NC727-6	100	6	9	7	1	8	9	5	9	8	1.0	1	1
NC733-7	100	8	9	6	1	8	8	3	6	7	1.0	0	1
NC744-4	100	6	6	7	1	8	9	3	8	8	1.0	1	4

Table 19 (cont'd). Plant growth and tuber characteristics for the 2020 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
ND1336-5	100	6	9	6	1	7	8	3	8	7	1.0	0	4
ND14134Y-3	93	7	9	7	1	8	9	3	9	6	1.0	1	3
ND1462ABC-1a	87	6	9	7	1	7	7	2	8	8	1.0	0	3
NYR1-7	100	7	9	7	1	6	7	3	7	8	1.0	0	1
NYR10-4	100	7	9	6	1	7	7	2	7	7	1.0	1	2
NYR101-2	100	8	6	6	1	7	8	3	7	7	1.0	2	3
NYR101-7	93	4	9	7	1	6	7	2	8	6	1.0	1	1
NYR102-3	80	4	9	9	1	6	8	2	7	7	1.0	1	1
NYR102-7	93	6	9	7	1	7	8	3	7	8	1.0	0	1
NYR102-8	47	4	9	9	1	6	7	3	9	5	1.0	1	4
NYR105-11	100	6	9	8	1	7	8	3	6	7	1.0	2	1
NYR107-11	93	6	9	6	1	8	9	4	9	4	1.0	1	1
NYR107-4	100	6	9	5	1	8	9	2	7	7	1.0	0	3
NYR107-6	93	5	9	7	1	7	8	2	8	6	1.0	0	4
NYR17-1	60	5	9	7	1	7	8	3	6	5	1.5	1	3
NYR2-2	80	5	9	9	1	6	6	3	7	6	1.0	2	2
NYR3-5	100	7	9	9	1	7	7	3	8	7	1.0	0	1
NYR5-6	93	6	9	7	1	6	8	4	6	8	1.0	0	2
AOR13124-6	93	4	9	9	1	6	7	3	8	7	1.0	1	1
AOR13137-2	87	6	9	7	1	8	8	4	6	7	1.0	1	1
NDOR13315CB-3	100	4	9	9	1	7	8	2	7	4	1.0	0	1
NDOR13320CAB-2	93	5	9	7	1	8	9	2	9	8	1.0	1	3
NDOR1480Y-3	100	5	9	7	1	7	8	3	9	7	1.0	1	1
NYORN41-5	100	6	9	7	1	6	8	1	7	8	1.0	1	1
ATTX07042-3W	100	7	9	5	3	8	8	1	7	8	1.0	2	4
ATX13134-3W/Y	93	8	6	6	3	7	8	3	7	6	1.5	2	4
COTX13231-1W	100	8	9	3	1	6	7	2	8	7	1.0	1	4
COTX13231-4W	80	5	9	7	1	6	8	2	8	7	1.0	0	4
NDTX1444-5W	100	5	9	6	1	8	9	1	9	8	1.5	1	4
NDTX1482YB-1W	87	6	9	5	1	8	8	2	8	8	1.0	1	4

Table 19 (cont'd). Plant growth and tuber characteristics for the 2020 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
TX09403-15W	100	6	9	6	1	7	8	1	8	8	1.0	1	4
TX09403-21W	100	6	9	6	1	8	9	3	9	6	1.0	1	4
TX12484-3WZC	87	7	9	6	1	7	7	2	8	6	2.0	1	1
W14184-5	93	6	9	8	1	7	7	3	9	8	1.0	1	1
W14187-2	73	5	9	7	1	8	8	3	9	7	1.0	0	2
W14NYQ29-5	53	6	9	7	1	7	7	1	7	8	1.0	2	2
W14NYQ4-1	100	7	9	7	1	6	7	2	8	7	1.5	1	3
W14NYQ9-2	100	7	9	8	1	8	9	1	7	7	1.0	1	1
W15125-4	100	9	9	7	1	6	7	2	7	8	1.0	1	1
W15200-3	93	5	9	7	1	8	8	3	8	5	1.0	1	4
W15NYR11-13	100	7	9	7	1	7	7	3	7	7	1.0	1	2
W15NYR11-8	80	5	9	6	1	7	7	2	7	8	1.0	0	1
W15NYR5-2	93	6	9	7	1	8	8	4	8	8	1.0	2	4
<hr/> Tier 2 = 2 reps <hr/>													
AC11453-7W	97	8	6	7	1	8	8	2	8	6	1.0	1	2
AC11494-6W	93	7	9	7	1	7	7	3	8	8	1.0	1	2
CO12235-3W	90	7	8	7	1	8	9	2	8	5	1.0	0	4
CO12293-1W	93	8	9	7	1	8	9	3	9	6	1.0	1	2
A11516-1C	90	6	9	7	1	8	9	3	9	8	1.0	1	1
AF6192-3	97	5	9	7	1	8	8	3	7	8	1.0	0	1
AF6200-4	97	7	9	8	1	7	8	2	7	7	1.0	1	2
AF6232-1	97	7	9	5	1	8	8	2	8	6	1.3	1	3
MSAFB605-4	93	4	9	8	1	6	7	3	8	7	1.3	1	2
MSAFB609-12	93	7	9	7	1	8	8	3	9	8	1.0	1	2
MSAFB609-5	100	7	9	7	2	8	8	2	7	7	1.0	1	4
MSAFB635-15	90	6	9	8	3	7	8	3	8	6	1.0	2	3
MSAFB635-3	97	6	9	7	1	8	8	2	8	8	1.0	1	3
MSAA091-1	93	6	9	7	1	6	7	3	8	7	1.0	1	3
MSAA217-3	93	7	9	8	1	6	8	3	8	7	1.0	1	2

Table 19 (cont'd). Plant growth and tuber characteristics for the 2020 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
MSAA498-18	93	5	9	7	1	6	7	1	9	8	1.0	1	4
MSAA513-01	77	7	9	7	1	7	8	4	8	6	1.0	1	4
MSBB067-02	93	5	9	7	1	7	8	3	8	7	1.0	1	3
MSBB131-01	100	9	8	6	2	7	8	2	8	7	1.3	1	2
MSBB230-01	100	8	9	5	1	7	8	2	8	8	1.0	0	3
MSBB611-03	97	8	8	7	1	7	8	3	8	7	1.0	1	2
MSBB626-11	97	8	9	7	1	8	9	2	7	7	1.5	1	1
ND13220C-3	97	8	9	7	1	8	9	5	9	7	1.0	1	3
NY166	93	5	9	8	1	8	9	4	8	7	1.0	0	3
NY169	97	7	9	6	1	8	8	3	7	7	1.0	1	4
NYQ106-13	87	6	9	7	1	8	8	3	7	8	1.0	2	2
NYQ29-1	100	6	9	8	2	7	7	2	7	7	1.0	1	2
NYQ38-4	87	5	9	9	1	7	8	3	7	7	1.0	1	1
AOR12197-4	73	6	9	7	3	7	8	3	7	6	1.5	2	3
AOR13136-4	93	7	9	9	1	8	8	3	8	7	1.5	3	2
COOR13270-2	80	7	9	7	1	8	9	3	8	7	1.0	1	2
NYOR14Q9-5	97	6	9	9	1	8	8	1	8	8	1.0	0	1
NYOR14Q9-9	93	7	9	7	1	8	8	2	8	8	1.0	1	1
W12078-76	100	6	9	7	1	7	7	2	8	7	1.0	1	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 20. External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Atlantic					0	0	0	0	0	5	10
Lamoka					0	0	0	0	0	0	0
Pike					0	0	0	0	0	0	0
Snowden					0	0	0	0	0	13	0
<hr/> Tier 1 = 1 rep <hr/>											
CO13232-11W					0	0	0	0	0	0	0
CO13232-25W					0	0	0	0	0	0	0
CO13232-5W					0	0	0	0	0	0	0
A13125-3C					0	0	0	0	0	0	0
B2904-2					0	0	0	0	0	0	0
B3012-1					0	0	0	0	0	0	0
BNC549-1					0	0	0	0	0	0	0
B3296-3					0	0	0	0	0	0	0
B3306-2					0	0	0	0	0	0	0
B3317-1					0	0	0	0	0	0	0
BNC726-5					0	0	0	0	0	0	0
BNC742-2					0	0	0	0	0	0	0
BNC811-9					0	30	0	0	0	0	0
B3378-3					0	0	0	0	0	0	0
B3379-6					0	0	0	0	0	0	0
B3381-2					0	0	0	0	10	0	0
B3381-4					0	0	0	0	0	0	0
B3388-3					0	0	0	0	0	0	0
AF6165-9					0	0	0	0	0	0	0
AF6188-9					0	0	0	0	0	0	0
AF6197-8					0	0	0	0	0	0	0
AF6200-7					0	0	0	30	0	0	0
AF6206-5					0	0	0	0	0	0	0
AF6236-7					0	0	0	0	0	0	0
AF6237-3					0	0	0	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN
AF6253-1					0	0	0	0	20	0
AF6520-5					0	0	0	0	0	0
AF6522-1					0	0	0	0	10	10
AF6531-3					0	0	0	0	0	0
AF6542-1					0	0	0	0	70	0
AF6550-2					0	0	0	0	0	0
AF6551-1					0	0	0	0	40	0
AF6602-3					0	0	0	0	40	0
AF6603-5					0	0	0	0	0	0
AF6614-4					0	0	0	0	0	0
AF6616-1					0	0	0	0	0	0
AF6616-4					0	0	0	0	0	0
WAF15133-3					0	0	0	0	0	0
WAF15184-4					0	0	0	0	0	0
WAF15204-4					0	0	0	0	0	0
WAF15221-2					0	0	0	0	0	0
MSAA076-6					0	0	0	0	0	0
MSAA085-1					0	0	0	0	0	0
MSAA100-1					0	0	0	0	0	0
MSAA232-4					0	0	0	0	0	0
MSAA275-3					0	0	0	0	0	0
MSBB008-3					0	0	0	0	0	0
MSBB018-1					0	0	0	0	0	0
MSBB032-1					0	0	0	0	0	0
MSBB038-1					0	0	0	0	0	0
MSBB038-3					0	0	0	0	20	0
MSBB047-1					0	0	0	0	30	0
MSBB058-1					0	0	0	0	0	0
MSBB079-2					0	0	0	0	0	0
MSBB152-01					0	0	0	0	20	0

Table 20 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
MSBB190-1					0	0	0	0	0	0	0
MSBB190-2					0	0	0	0	0	0	0
MSBB193-1					0	0	0	0	0	0	0
MSBB222-1					0	0	0	0	0	0	0
MSBB230-2					0	0	0	0	0	0	0
MSBB610-13					0	0	0	0	0	0	0
MSBB614-10					0	0	0	0	0	0	0
MSBB617-2					0	0	0	0	0	0	0
MSBB618-9					0	0	0	0	40	0	0
MSBB623-12					0	0	0	0	0	0	0
MSBB625-2					0	0	0	0	0	0	0
MSBB633-18					0	0	0	0	0	0	0
MSBB634-8					0	0	0	0	0	0	0
MSBB635-14					0	0	0	0	0	0	0
MSCC009-1					0	0	0	0	0	0	0
MSCC058-1					0	0	0	0	20	0	0
MSCC081-1					0	0	0	0	30	0	0
MSCC168-1					0	0	0	0	0	0	0
MSCC248-3					0	0	0	0	0	0	0
MSCC256-02					0	0	0	0	0	0	0
MSCC266-1					0	0	0	0	0	0	0
MSCC376-1					0	0	0	0	0	0	0
MSDD085-13					0	0	0	0	0	0	0
MSX194-3					0	0	0	0	0	0	0
MSX472-2					0	0	0	10	0	0	0
MSZ248-02					0	0	0	0	0	0	0
MSZ248-10					0	0	0	10	0	0	0
NC727-6					0	0	0	0	0	0	0
NC733-7					0	0	0	0	0	0	0
NC744-4					0	0	0	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
ND1336-5					0	0	0	0	0	10	0
ND14134Y-3					0	0	0	0	0	0	0
ND1462ABC-1a					0	0	0	0	0	20	0
NYR1-7					0	0	0	0	0	0	0
NYR10-4					0	0	0	0	0	0	0
NYR101-2					0	0	0	0	0	0	0
NYR101-7					0	0	0	0	0	0	0
NYR102-3					0	0	0	0	0	0	0
NYR102-7					0	0	0	0	0	0	0
NYR102-8					0	0	0	0	0	0	0
NYR105-11					0	0	0	0	0	0	0
NYR107-11					0	0	0	0	0	0	0
NYR107-4					0	0	0	0	0	0	0
NYR107-6					30	0	0	0	0	20	0
NYR17-1					0	0	0	0	0	40	10
NYR2-2					0	0	0	0	0	0	0
NYR3-5					0	0	0	0	0	0	0
NYR5-6					0	0	0	0	0	0	0
AOR13124-6					0	0	0	0	0	0	0
AOR13137-2					0	0	0	0	0	0	0
NDOR13315CB-3					0	0	0	0	0	0	0
NDOR13320CAB-2					0	0	0	0	0	0	0
NDOR1480Y-3					0	0	0	0	0	0	0
NYORN41-5					0	0	0	0	0	0	0
ATTX07042-3W					0	0	0	0	0	0	0
ATX13134-3W/Y					0	0	0	0	0	0	0
COTX13231-1W					0	0	0	0	0	0	0
COTX13231-4W					0	10	0	0	0	10	0
NDTX1444-5W					0	0	0	0	0	0	0
NDTX1482YB-1W					0	0	0	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
TX09403-15W					0	0	0	0	0	0	0
TX09403-21W					0	0	0	0	0	0	0
TX12484-3WZC					0	0	0	0	0	0	0
W14184-5					0	0	0	0	0	0	0
W14187-2					0	0	0	0	0	0	0
W14NYQ29-5					0	0	0	0	0	0	0
W14NYQ4-1					0	0	0	0	60	0	0
W14NYQ9-2					0	0	0	0	0	0	0
W15125-4					0	0	0	0	0	0	0
W15200-3					0	0	0	0	0	0	0
W15NYR11-13					0	0	0	0	0	0	0
W15NYR11-8					0	0	0	0	0	0	0
W15NYR5-2					0	0	0	0	0	0	0
<hr/> Tier 2 = 2 reps <hr/>											
AC11453-7W					0	0	0	0	5	0	0
AC11494-6W					0	0	0	0	0	0	0
CO12235-3W					0	0	0	0	0	0	0
CO12293-1W					0	0	0	0	0	0	0
A11516-1C					0	0	0	0	0	0	0
AF6192-3					0	0	0	0	0	0	0
AF6200-4					0	0	0	0	0	0	0
AF6232-1					0	0	0	0	20	0	0
MSAFB605-4					0	0	0	0	0	0	0
MSAFB609-12					0	0	0	0	0	0	0
MSAFB609-5					0	0	0	0	25	0	0
MSAFB635-15					0	0	0	0	0	0	0
MSAFB635-3					0	0	0	5	0	0	0
MSAA091-1					0	0	0	0	0	0	0
MSAA217-3					0	0	0	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN
MSAA498-18					0	0	0	0	25	0
MSAA513-01					0	0	0	0	0	0
MSBB067-02					0	5	0	0	0	0
MSBB131-01					0	0	0	0	0	0
MSBB230-01					0	0	0	0	0	0
MSBB611-03					0	0	0	0	0	5
MSBB626-11					0	0	0	0	0	0
ND13220C-3					0	0	0	0	15	0
NY166					0	0	0	0	0	0
NY169					0	0	0	0	5	0
NYQ106-13					0	0	0	0	0	0
NYQ29-1					0	0	0	0	0	0
NYQ38-4					0	0	0	0	0	0
AOR12197-4					0	5	0	5	5	0
AOR13136-4					0	0	0	0	0	0
COOR13270-2					10	0	0	0	0	0
NYOR14Q9-5					0	0	0	0	0	0
NYOR14Q9-9					0	0	0	0	0	0
W12078-76					0	0	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), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 8. 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	January 29, 2020
Vine Kill Date	N/A
Harvest Date	May 14, 2020
Season Length	106 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	8 (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	40 DAP
Highest Total Yield	Atlantic (363 cwt/acre or 40.7 T/ha)
Highest Marketable Yield	Atlantic (328 cwt/acre or 36.8 T/ha)
Highest Specific Gravity	B3379-2 (1.077)

Table 21. Production statistics for the 2020 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-106 days</u>												
BNC811-15	273	211	64	6	16	33	44	0	0	77	44	1.072
BNC811-17	298	261	79	3	9	19	68	0	0	88	68	1.064
BNC811-22	319	219	67	12	20	41	26	2	0	68	28	1.069
BNC811-33	303	272	83	3	7	25	64	0	0	90	64	1.068
BNC811-35	285	256	78	3	7	20	67	2	0	89	69	1.067
BNC815-6	314	267	81	5	10	29	56	0	0	85	56	1.075
BNC815-7	328	255	78	10	13	43	34	0	0	77	34	1.070
BNC816-3	237	163	50	10	22	35	31	2	0	68	33	1.068
BNC818-9	356	288	88	7	12	31	49	0	0	81	49	1.068
BNC821-9	298	229	70	7	17	34	42	1	0	77	43	1.072
BNC833-2	249	156	47	12	26	52	8	3	0	62	10	1.065
BNC839-5	216	167	51	7	15	19	58	0	0	77	58	1.059
B3355-6	297	177	54	9	32	39	20	0	0	59	20	1.062
B3364-3	221	157	48	11	19	50	19	2	0	71	21	1.055
B3372-1	229	114	35	19	36	35	10	0	0	46	10	1.060
B3379-1	256	141	43	17	31	33	20	0	0	52	20	1.067
B3379-2	240	145	44	13	28	35	24	0	0	59	24	1.077
B3381-4	255	186	57	8	19	35	38	0	0	73	38	1.073
B3382-8	298	218	66	9	19	34	39	0	0	73	39	1.065
B3385-2	286	248	76	4	9	31	55	1	0	86	55	1.065
B3390-6	340	267	81	8	15	47	31	0	0	78	31	1.065
B3397-1	333	293	89	4	8	49	39	0	0	88	39	1.069
B3403-6	329	241	73	9	18	32	41	0	0	73	41	1.076
B3410-12	230	205	63	3	8	21	67	1	0	89	68	1.060
B3423-9	260	229	70	4	8	33	55	0	0	88	55	1.073
B3295-5	316	263	80	4	14	45	37	0	0	82	37	1.065
B3297-5	283	172	53	17	22	35	26	0	0	61	26	1.068
BNC716-1	187	152	46	5	13	34	47	1	0	81	48	1.053
BNC718-1	220	191	58	2	11	38	49	0	0	86	49	1.067
BNC723-4	286	222	68	7	15	32	45	0	0	78	45	1.066

Table 21 (cont'd). Production statistics for the 2020 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)	(cwt/A)	% of standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	
BNC726-5	314	222	68	11	19	45	25	1	0	70	26	1.076
BNC742-2	269	196	60	8	20	39	33	1	0	72	34	1.071
BNC559-1	276	226	69	6	12	60	22	0	0	82	22	1.062
B2152-17	248	164	50	13	21	50	15	1	0	66	16	1.059
B2869-29	236	153	47	12	23	44	20	0	0	64	20	1.075
BNC182-5	341	301	92	3	8	20	67	0	0	88	68	1.063
BNC369-4	320	279	85	3	10	36	51	1	0	87	52	1.064
Atlantic	363	328	100	3	6	29	62	0	0	90	62	1.070
Chieftain	270	224	68	7	10	46	37	0	0	83	37	1.062
Dark Red Norland	254	212	65	5	12	45	38	0	0	83	38	1.063
Elkton	314	286	87	2	7	22	67	2	0	91	69	1.067
Peter Wilcox (B1816-5)	299	203	62	9	24	48	19	1	0	68	19	1.064
Snowden	269	229	70	4	10	44	41	1	0	86	42	1.072
Superior	206	147	45	9	20	53	18	0	0	71	18	1.066
Yukon Gold	241	219	67	4	6	28	62	0	0	90	63	1.068
MSD ³	56	56		4	7	9	12	ns	ns	10	13	0.006
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.5511	-	<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 Waller-Duncan K-ratio t Test.

Table 22. Plant growth and tuber characteristics for the 2020 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
BNC811-15	96	5	9	7	1	7	7	3	9	6	3
BNC811-17	90	5	9	7	1	2	9	5	6	8	3
BNC811-22	95	5	9	7	1	7	7	3	9	8	3
BNC811-33	93	5	9	7	1	7	7	2	8	7	2
BNC811-35	91	6	9	7	1	7	7	3	8	7	2
BNC815-6	92	6	9	8	1	6	7	3	6	6	2
BNC815-7	92	6	9	7	1	7	7	2	9	8	2
BNC816-3	93	6	9	6	1	6	5	2	7	8	4
BNC818-9	97	6	9	7	1	7	7	3	6	8	1
BNC821-9	84	5	9	9	1	6	7	2	8	8	2
BNC833-2	85	5	9	5	9	1	8	3	8	5	3
BNC839-5	78	4	9	6	1	2	8	2	7	8	4
B3355-6	92	6	9	5	9	1	8	6	6	7	2
B3364-3	92	5	9	5	9	1	9	6	7	5	4
B3372-1	98	7	8	5	9	1	9	5	6	6	4
B3379-1	92	7	8	6	1	6	7	3	6	7	3
B3379-2	94	5	9	7	1	6	7	2	9	8	4
B3381-4	97	8	9	6	3	6	7	2	8	7	2
B3382-8	89	6	9	7	1	7	7	1	6	8	3
B3385-2	91	6	9	6	1	1	8	2	8	7	2
B3390-6	96	7	9	7	1	6	6	3	8	7	2
B3397-1	93	7	9	6	1	8	8	3	8	6	1
B3403-6	95	8	9	6	1	6	5	1	6	8	2
B3410-12	93	5	9	5	4	7	9	2	6	9	3
B3423-9	88	5	9	7	1	7	7	4	7	8	2
B3295-5	96	6	9	6	1	7	8	5	8	8	3
B3297-5	95	7	9	6	1	6	7	2	8	8	4
BNC716-1	77	4	9	7	3	2	8	3	8	6	4
BNC718-1	79	4	9	7	3	1	8	3	8	7	3
BNC723-4	95	6	9	5	1	7	7	1	8	6	3

Table 22 (cont'd). Plant growth and tuber characteristics for the 2020 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	Merit
BNC726-5	93	7	9	7	1	7	7	3	8	6	2
BNC742-2	94	7	7	6	1	7	7	3	9	7	3
BNC559-1	96	5	9	5	1	1	9	4	7	7	3
B2152-17	96	6	9	5	3	2	9	2	9	8	4
B2869-29	98	7	8	6	1	8	8	2	8	7	3
BNC182-5	91	7	9	7	1	7	7	2	8	8	1
BNC369-4	86	6	9	6	1	7	7	4	7	8	1
Atlantic	88	6	9	7	1	6	6	2	6	6	-
Chieftain	98	5	9	7	1	2	8	3	7	6	3
Dark Red Norland	95	6	9	6	1	7	7	3	7	6	2
Elkton	97	6	9	6	1	6	6	4	8	8	3
Peter Wilcox (B1816-5)	85	6	9	6	4	1	8	4	6	7	3
Snowden	95	6	9	6	1	7	7	2	5	7	2
Superior	100	6	9	6	1	7	7	3	6	7	4
Yukon Gold	89	5	9	6	3	7	8	2	8	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 23. External and internal defects for the 2020 USDA Chipping Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²					
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC811-15					0	0	0	0	0	0	0
BNC811-17					0	5	0	0	0	13	5
BNC811-22					0	0	0	0	0	3	0
BNC811-33					0	3	0	0	0	0	0
BNC811-35					0	0	0	0	0	0	0
BNC815-6					0	0	0	0	0	0	0
BNC815-7					0	0	0	0	0	3	0
BNC816-3					0	0	0	0	0	5	0
BNC818-9					0	0	0	0	0	0	0
BNC821-9					0	0	0	0	0	0	0
BNC833-2					0	0	0	3	0	0	0
BNC839-5					0	0	0	0	0	0	0
B3355-6					0	3	0	0	0	0	3
B3364-3					0	0	0	0	0	0	0
B3372-1					0	0	0	0	0	0	0
B3379-1					0	0	0	0	3	0	0
B3379-2					0	0	0	0	0	0	0
B3381-4					0	3	0	0	0	0	0
B3382-8					0	0	0	0	0	0	0
B3385-2					0	0	0	0	0	0	0
B3390-6					0	0	0	0	0	0	0
B3397-1					0	0	0	0	0	0	0
B3403-6					0	0	0	0	0	0	0
B3410-12					0	5	0	0	0	5	0
B3423-9					0	0	0	3	3	0	0
B3295-5					0	0	0	0	0	5	0
B3297-5					0	0	0	0	0	0	0
BNC716-1					0	0	0	0	0	0	0
BNC718-1					0	0	0	0	0	3	0
BNC723-4					0	0	0	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2020 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	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC726-5					0	0	3	0	0	8	0
BNC742-2					0	0	0	0	0	3	0
BNC559-1					0	0	0	0	0	5	0
B2152-17					0	0	0	0	0	0	0
B2869-29					0	3	0	0	0	0	0
BNC182-5					0	0	0	0	0	0	0
BNC369-4					0	0	0	0	0	0	0
Atlantic					0	0	0	0	0	0	0
Chieftain					0	0	0	0	0	0	0
Dark Red Norland					0	3	0	0	0	0	0
Elkton					0	0	0	0	15	0	0
Peter Wilcox (B1816-5)					0	0	0	0	0	0	0
Snowden					0	0	0	0	0	0	0
Superior					0	0	0	0	0	0	0
Yukon Gold					0	0	0	0	0	3	0
MSD ³					ns	ns	ns	ns	ns	ns	ns
P Value					-	0.7108	-	0.5328	0.1297	0.4836	

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

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

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

Chapter 9. Potatoes USA SNAC Potato Variety Trial

General Comments

A goal of the SNAC trial is to identify a short-season processing potato variety with better production and quality characteristics than the “standard” Atlantic. Potatoes were fried and chip scores are noted in Table 25.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 6, 2020
Vine Kill Date	N/A
Harvest Date	May 18, 2020
Season Length	102 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	9
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	20 ft (6.1 m) x 2

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	Atlantic (353 cwt/acre or 39.6 T/ha)
Highest Marketable Yield	Atlantic (323 cwt/acre or 36.2 T/ha)
Highest Specific Gravity	NY162 (1.078)

Table 24. Production statistics for the 2020 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-102 days</u>												
B2869-29	304	239	74	7	16	40	37	0	0	77	37	1.074
CO11023-2W	284	249	77	6	7	21	63	3	0	87	66	1.068
CO11023-9W	254	201	62	9	13	24	54	0	0	78	54	1.065
MSW474-1	309	230	71	10	17	31	41	1	0	73	42	1.067
MSZ063-2	305	244	76	7	13	31	49	1	0	80	49	1.073
MSZ242-13	234	208	64	4	8	18	64	6	0	89	71	1.075
ND7519-1	348	283	88	7	13	42	37	1	0	80	38	1.077
NY162	248	189	59	8	16	37	38	1	0	76	39	1.078
NY163	218	131	40	17	29	33	20	0	0	54	20	1.077
Atlantic	353	323	100	3	6	28	61	2	0	91	64	1.077
Snowden	294	237	73	7	15	31	45	2	0	78	47	1.070
MSD ³	87	89		8	7	11	14	3	ns	14	14	0.013
P Value	<0.0001	<0.0001		0.0002	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	0.0064

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 25. Plant growth and tuber characteristics for the 2020 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	Chip Score	Merit
B2869-29	95	7	9	6	1	7	7	2	7	6	71.9	2
CO11023-2W	90	6	9	7	1	6	7	2	7	6	73.9	2
CO11023-9W	78	5	9	7	1	7	8	2	8	5	71.8	3
MSW474-1	96	7	9	6	1	6	6	2	7	7	71.5	2
MSZ063-2	91	5	9	7	1	7	7	3	8	7	71.0	3
MSZ242-13	65	4	9	8	1	7	7	3	8	5	68.3	3
ND7519-1	95	8	9	6	1	6	7	3	6	7	75.6	1
NY162	87	5	9	7	1	6	7	3	8	6	71.6	3
NY163	85	5	9	5	1	7	8	3	8	8	77.3	4
Atlantic	90	6	9	7	1	6	7	3	9	8	72.4	2
Snowden	91	7	9	7	1	6	5	2	6	7	74.2	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.

Chip Score: A subsample of potatoes from the trial was shipped to Utz Quality Snacks, chipped and scored according to the Hunter Lab rating. Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 26. External and internal defects for the 2020 Potatoes USA SNAC Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²					
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
B2869-29					0	0	0	0	0	0	0
CO11023-2W					0	1	0	0	0	1	0
CO11023-9W					0	0	0	0	0	0	0
MSW474-1					0	0	0	0	0	1	0
MSZ063-2					0	0	0	0	0	34	0
MSZ242-13					0	0	0	0	0	0	0
ND7519-1					0	0	0	0	0	0	0
NY162					0	0	0	0	0	1	0
NY163					0	0	0	0	0	0	0
Atlantic					0	3	0	3	0	0	0
Snowden					0	0	0	0	0	0	0
MSD ³					ns	ns	ns	ns	19	ns	
P Value					-	0.0580	-	0.4654	<0.0001	-	

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

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

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

Chapter 10. NE1731 Regional Project Potato Variety Trial

General Comments

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

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	January 29, 2020
Vine Kill Date	N/A
Harvest Date	May 13, 2020
Season Length	105 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	17
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	Atlantic (414 cwt/acre or 46.4 T/ha)
Highest Marketable Yield	Atlantic (371 cwt/acre or 41.6 T/ha)
Highest Specific Gravity	MSAFB635-3, MSAFB635-15 (1.079)
Best Appearance Rating	Russet Norkotah, NDAF113484B-1 (9, excellent)

Table 27. Production statistics for the 2020 University of Maine NE1731 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-105 days												
Harley Blackwell (B0564-8)	304	251	68	7	11	21	59	3	0	83	62	1.066
Atlantic	414	371	100	3	8	23	65	1	0	89	66	1.066
Chieftain	336	289	78	4	10	47	39	0	0	86	39	1.063
Dark Red Norland	261	185	50	12	17	40	31	0	0	71	31	1.057
Katahdin	306	258	69	4	11	34	50	0	0	84	51	1.059
Kennebec	345	306	82	3	9	48	40	0	0	89	40	1.066
Reveille Russet	217	180	48	6	11	30	52	1	0	83	53	1.060
Russet Burbank	212	148	40	10	21	47	21	0	0	69	21	1.057
Russet Norkotah	273	232	62	6	9	30	54	1	0	85	55	1.063
Shepody	301	253	68	5	10	43	40	1	0	84	41	1.066
Snowden	335	291	78	4	9	24	61	2	0	87	62	1.064
Superior	298	239	64	4	16	49	31	0	0	79	31	1.068
Yukon Gold	262	237	64	3	7	16	73	1	0	90	74	1.064
AF5280-5	367	332	90	3	6	22	66	2	0	91	68	1.057
AF5406-7	402	306	82	6	18	54	21	1	0	76	22	1.065
AF5563-5	236	219	59	2	5	20	69	3	0	93	72	1.072
AF5677-4	261	203	55	9	14	47	30	1	0	77	30	1.071
NDAF102629C-4	227	190	51	5	12	16	64	3	0	84	68	1.058
NY151	377	302	81	8	12	32	47	0	0	80	48	1.057
NY152	379	317	85	5	11	29	53	1	0	84	54	1.066
NY164	264	205	55	7	16	39	38	0	0	77	38	1.062
NY165	330	266	72	8	11	39	41	1	0	81	41	1.070
TX08352-5Ru	325	278	75	5	10	24	56	4	0	85	61	1.055
WAF10664-3	324	269	73	4	13	23	59	1	0	83	60	1.066
MSAFB605-4	286	225	61	5	16	36	42	1	0	79	43	1.070
MSAFB609-5	313	251	68	7	13	26	53	1	0	80	54	1.072
MSAFB635-3	309	235	63	7	17	32	43	1	0	76	43	1.079
MSAFB635-15	319	246	66	7	16	30	48	0	0	78	48	1.079
AF5429-3	354	281	76	8	12	21	58	1	0	80	59	1.064
NDAF113484B-1	269	180	48	9	25	39	25	3	0	66	28	1.056
MSD ³	59	58	3	5	8	11	ns	ns	7	11	0.008	
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.1888	-	<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 2020 University of Maine NE1731 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)	92	6	9	6	1	7	7	2	8	8	3
Atlantic	97	6	9	7	1	6	7	2	7	6	-
Chieftain	95	5	9	7	1	2	9	3	6	7	2
Dark Red Norland	98	5	9	6	2	2	8	3	6	7	4
Katahdin	86	5	9	7	1	7	8	3	5	6	3
Kennebec	93	5	9	7	1	8	9	6	6	6	2
Reveille Russet	1	1	9	9	1	4	4	6	9	8	4
Russet Burbank	64	4	9	9	1	6	7	7	8	7	4
Russet Norkotah	85	4	9	8	1	4	4	6	9	9	2
Shepody	90	4	9	7	1	8	8	6	7	8	3
Snowden	91	6	9	7	1	6	5	1	5	7	2
Superior	93	6	9	7	1	7	6	2	8	6	4
Yukon Gold	85	5	9	7	3	7	9	2	9	7	2
AF5280-5	85	5	9	7	1	7	8	4	7	8	1
AF5406-7	95	6	9	6	1	5	8	9	7	7	2
AF5563-5	44	4	9	8	1	7	8	1	8	8	4
AF5677-4	83	4	9	7	1	8	8	3	7	7	2
NDAF102629C-4	51	4	9	7	1	7	9	3	8	8	3
NY151	84	5	9	7	2	7	9	2	7	7	2
NY152	94	6	9	7	2	6	5	2	8	8	2
NY164	96	8	9	5	1	2	9	2	9	8	3
NY165	96	6	9	6	1	6	7	2	7	8	2
TX08352-5Ru	58	4	9	8	1	6	7	6	8	6	2
WAF10664-3	93	5	9	7	1	7	8	2	8	7	2
MSAFB605-4	83	4	9	8	1	6	5	2	8	8	3
MSAFB609-5	93	6	9	7							3
MSAFB635-3	91	5	9	7	1	7	8	1	8	8	3
MSAFB635-15	93	5	9	8	2	6	7	2	8	7	3
AF5429-3	94	7	9	6	1	7	8	3	8	8	3
NDAF113484B-1	91	5	9	6	1	2	9	4	6	9	4

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 2020 University of Maine NE1731 Variety Trial potato selections.

Clone	% External Tuber Defects					% Internal Defects ²					
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Harley Blackwell (B0564-8)					0	0	0	0	0	0	0
Atlantic					0	3	0	0	0	0	13
Chieftain					0	0	0	0	0	0	0
Dark Red Norland					0	0	0	0	0	0	0
Katahdin					0	0	0	0	0	3	0
Kennebec					0	0	0	0	0	0	0
Reville Russet					0	0	0	0	23	0	0
Russet Burbank					0	0	0	0	0	0	0
Russet Norkotah					0	0	0	3	0	0	0
Shepody					0	0	0	0	0	0	0
Snowden					0	0	0	0	0	0	0
Superior					0	0	0	0	35	0	0
Yukon Gold					0	3	0	3	5	3	3
AF5280-5					0	0	0	0	0	0	3
AF5406-7					0	3	0	0	0	0	0
AF5563-5					0	0	0	0	13	0	0
AF5677-4					0	0	0	0	3	3	3
NDAF102629C-4					0	0	0	8	0	0	0
NY151					0	0	0	0	3	3	3
NY152					0	0	0	0	3	0	0
NY164					0	0	0	0	5	0	0
NY165					0	0	0	0	0	0	0
TX08352-5Ru					0	0	0	0	0	0	0
WAF10664-3					0	0	0	0	0	0	0
MSAFB605-4					0	0	0	0	0	0	0
MSAFB609-5					0	0	0	0	0	0	0
MSAFB635-3					0	0	0	0	0	0	0
MSAFB635-15					0	0	0	0	0	0	0
AF5429-3					0	13	0	0	8	0	0
NDAF113484B-1					0	0	0	0	33	0	0
MSD ³					ns	ns	ns	4	24	ns	
P Value					-	0.5415	-	0.0181	0.0062	0.1043	

¹Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.²Percent tubers hollow heart (HH), brown rot (BR), 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 30. Daily rainfall amounts (in) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 15, 2020.

Day	January	February	March	April	May	June
1	0.00	0.00	0.00	0.00	0.00	0.12
2	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
4	0.21	0.00	0.00	0.00	0.00	1.34
5	0.00	0.00	0.08	0.21	0.00	0.00
6	0.00	0.55	0.00	0.01	0.00	1.41
7	0.00	0.03	0.00	0.00	0.00	0.22
8	0.00	0.00	0.00	0.04	0.00	0.92
9	0.00	0.00	0.00	0.00	0.00	0.05
10	0.00	0.00	0.00	0.00	0.15	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.10	0.00	0.27	0.00	0.00
15	0.00	0.01	0.00	0.39	0.00	0.00
16	0.00	0.20	0.00	0.05	0.13	-
17	0.00	0.03	0.00	0.00	0.00	-
18	0.00	0.00	0.00	0.00	0.00	-
19	0.00	0.00	0.00	0.00	0.00	-
20	0.00	0.00	0.00	0.06	0.00	-
21	0.00	0.04	0.00	0.00	0.07	-
22	0.00	0.00	0.00	0.00	0.00	-
23	0.00	0.00	0.00	0.00	0.00	-
24	0.00	0.00	0.00	0.47	0.00	-
25	0.00	0.15	0.02	0.00	0.41	-
26	0.00	0.57	0.00	0.00	0.19	-
27	0.00	0.00	0.00	0.00	0.78	-
28	0.00	0.00	0.00	0.00	0.54	-
29	0.00	0.00	0.00	0.00	1.34	-
30	0.01	-	0.00	0.37	0.45	-
31	0.01	-	0.33	-	0.00	-
Total	0.23	1.68	0.43	1.87	4.06	4.07

Table 31. Daily maximum and minimum air temperatures (°F) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 15, 2020.

Day	January		February		March		April		May		June	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	67	46	60	51	65	35	70	52	80	51	84	74
2	76	48	63	44	76	45	72	47	82	49	81	69
3	80	66	74	38	82	59	77	47	87	54	81	64
4	74	56	72	41	86	62	82	51	88	59	79	71
5	60	42	79	51	87	64	70	63	88	61	84	72
6	66	37	83	66	71	55	77	60	86	60	81	72
7	69	39	64	41	55	39	84	57	70	50	82	72
8	63	41	64	35	68	39	84	61	82	44	88	73
9	72	41	69	42	74	51	91	72	73	59	88	72
10	77	60	79	49	77	58	76	58	73	62	91	75
11	79	67	84	63	81	56	77	49	84	58	88	72
12	83	65	83	62	80	56	86	66	77	53	87	70
13	81	61	86	63	84	54	90	69	80	54	83	71
14	80	58	69	49	84	56	80	69	80	59	82	69
15	82	61	71	46	87	57	82	61	81	63	84	67
16	79	60	80	53	77	63	69	58	82	71	-	-
17	69	61	74	60	83	61	77	52	86	70	-	-
18	74	57	84	59	84	63	80	67	89	66	-	-
19	75	53	79	63	84	57	91	65	90	68	-	-
20	55	40	74	52	85	58	86	68	91	64	-	-
21	49	37	52	44	87	60	84	59	92	62	-	-
22	52	33	58	41	86	60	78	56	93	64	-	-
23	67	52	70	45	86	63	90	57	91	69	-	-
24	76	55	77	49	86	60	76	66	86	68	-	-
25	66	44	71	64	84	66	86	64	78	72	-	-
26	63	41	74	57	81	65	85	68	78	73	-	-
27	64	52	58	41	88	63	75	53	87	72	-	-
28	63	41	61	35	91	63	78	47	88	69	-	-
29	65	37	64	41	91	62	85	55	86	68	-	-
30	64	54	-	-	90	63	78	59	90	68	-	-
31	70	55	-	-	86	65	-	-	90	71	-	-
Avg.	70	50	71	50	81	57	81	59	84	62	84	71