Cornell Potato Breeding Annual Report, December 2020

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Description of Advanced Selections from Cornell Breeding Program
Based on Cornell trials in 2020 and prior years
Last updated: 13 December 2020

NY160 (L27-2) = D32-4 x Upstate Abundance (2009). Early-mid season, small tubers, pink-skinned tablestock.

This clone had a lot of virus in 2015, so was not tested from 2016 through 2019. Testing resumed, with clean seed, in 2020.

- In five Tompkins County trials over three years, marketable yields averaged 83% of Chieftain.

- Yield in Wayne County was 84% of Chieftain in 2014 and 50% of Chieftain in 2015.

Tubers are relatively small, with smooth, pink skin. Very few pickouts or internal defects have been observed. Moderate resistance to common scab. Tuber dormancy is two weeks shorter than Atlantic. Susceptible to the golden nematode.

NY163 (L7-2) = E50-8 x E48-2 (2009). Mid-late season chipstock, exceptionally light chip color out of cold storage.

- In 15 Tompkins County trials over the past seven years, marketable yields averaged 97% of Atlantic.

- In trials in Wyoming and Steuben counties, yield averaged 84% of Atlantic in 2016, 112% in 2017, 84% in 2018, 88% in 2019, and 72% of Atlantic in 2020.

- On Long Island yield was 123% of Reba in 2016.

- Yield in Pennsylvania was 113% of Atlantic in 2017 (1 trial) and 97% of Atlantic in 2020 (3 trials).

- Yield in eight Northern SNAC trails averaged 94% of Snowden in 2020.

Tubers are round to oblong with lightly netted skin. Low levels of growth cracks and knobs have been observed. No hollow heart, brown center or internal necrosis has yet been seen in NY. Specific gravity has averaged 0.004 less than Atlantic (24 trials). Chip color from 44F storage in December, January and February (2014 crop season) averaged 3.7 compared to 4.3 for Snowden (lower is better). Chip color averaged 3.2 vs 3.8 for Snowden in 2015, and 2.3 vs 4.3 in 2016. Out of 43F storage color averaged 2.5 vs 4.4 for Snowden in 2017, 3.0 vs 4.8 in 2018, and 2.3 vs 4.7 in 2019. Moderate resistance to common scab. Tuber dormancy is about one week longer than Atlantic. Resistant to race Ro1 of the golden nematode.

NY165 (M8-5) = NY148 x F48-4 (2010) Mid-season chipstock.

- In 13 Tompkins County trials over the past six years, marketable yields averaged 107% of Atlantic.

- In trials in Wyoming and Steuben counties, yield averaged 110% of Atlantic in 2017, 120% in 2018, 101% in 2019, and 102% of Atlantic in 2019.

- Yield on Long Island was 119% of Reba in 2018 and 122% of Atlantic in 2019.

- Yield in Pennsylvania was 104% of Atlantic in 2019 (3 trials).

Tubers are round to oblong, flattened, with lightly textured skin. Low levels of pickouts (misshapes and knobs) and internal defects (hollow heart and brown center) have been observed. Specific gravity has averaged 0.007 less than Atlantic (20 trials). Chip color from 44F storage in December, January and February (2015 crop season) averaged 3.2 compared to 4.2 for Snowden (lower is better). Chip color averaged 3.5 vs 4.3 for Snowden in 2016. Out of 43F storage chip color averaged 3.0 vs 4.4 for Snowden in 2017, 3.9 vs 4.8 in 2018, and 4.0 vs 4.7 in 2019. Moderately resistant to common scab. Tuber dormancy is one to two weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode.

NY168 (N40-7) = NY148 x E48-2 (2011) High gravity mid-season chipstock.

- In eight Tompkins County trials over the past five years, marketable yields averaged 102% of Atlantic.

- Yield in Steuben and Wyoming counties averaged 73% of Atlantic in 2019 and 86% of Atlantic in 2020.

Tubers are round/compressed with moderately textured skin and occasional purple blush. Low levels of pickouts (knobs and growth cracks) and internal defects (hollow heart) have been observed. Specific gravity has averaged 0.003 less than Atlantic (12 trials). Chip color from 44F storage in December, January and February (2016 crop season) averaged 3.7 compared to 4.0 for Snowden (lower is better). Chip color from 43F averaged 3.8 vs 4.2 for Snowden in 2017, 3.6 vs 4.8 in 2018, and 3.3 vs 4.7 in 2019. Moderately susceptible to common scab. Tuber dormancy is about three weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode.

NY169 (P14-1) = Snowden x E48-2 (2012) High gravity chipstock, excellent chip color out of cold storage.

- In seven Tompkins County trials over the past four years, marketable yields averaged 92% of Atlantic.

- Yield in Steuben and Wyoming counties averaged 85% of Atlantic in 2019 and 67% of Atlantic in 2020.

- Yields averaged the same as Atlantic in National Chip Processing Trials in 2020 (6 locations, but small plots).

Tubers are round/compressed with moderately textured skin and occasional purple blush. Low levels of pickouts (knobs and growth cracks) and internal defects (internal necrosis, hollow heart) have been observed. Specific gravity has averaged equal to Atlantic (11 trials). Chip color from 44F storage in December, January and February (2016 crop season) averaged 3.0 compared to 4.0 for Snowden (lower is better). Chip color from 43F averaged 3.3 vs 4.3 for Snowden in 2017, 2.8 vs 4.8 in 2018, and 2.7 vs 4.7 in 2019. Moderately susceptible to common scab. Tuber dormancy is about 1 week less than Atlantic. Resistant to race Ro1 of the golden nematode.

NY171 (Q126-1) = Blue Belle x NY115 (2013). Early maturing tablestock, long white tubers with purple color around the eyes.

- In three Tompkins County trials in 2018 and 2019, marketable yields averaged 86% of Atlantic. In one Tompkins County trial in 2020, yield was 91% of Eva.

- Yield in Wayne County was 92% of Eva in 2019 and 95% of Eva in 2020.

Tubers are long with bright white skin and striking purple color around the eyes. Low levels of pickouts (secondary growth and growth cracks) and internal defects (hollow heart) have been observed. Specific gravity has averaged 0.017 less than Atlantic (3 trials). Tubers exhibit some after cooking darkening and slight sloughing when boiled. Moderately resistant to common scab. Tuber dormancy is three weeks longer than Atlantic. Resistant to race Ro1of the golden nematode.

NY172 (Q29-1) = Lady Liberty x F31-3 (2013) Mid-season chipstock.

- In four Tompkins County trials over the past three years, marketable yields averaged 98% of Atlantic.
- Yield in Steuben and Wyoming counties averaged 70% of Atlantic in 2019 and 100% of Atlantic in 2020.
- Total yield in National Chip Processing Trials in 2020 averaged 97% of Atlantic (6 locations, but small plots).

Tubers are round to oblong with moderate to highly textured skin. Modest levels of pickouts (secondary growth and growth cracks) and internal defects (hollow heart, internal necrosis and brown center) have been observed. Specific gravity has averaged 0.003 less than Atlantic (8 trials). Chip color from 43F storage in December, January and February (2018 crop season) averaged 3.2 compared to 4.8 for Snowden (lower is better). Chip color from 43F averaged 4.0 vs 4.7 in 2019. Moderately resistant to common scab. Tuber dormancy is about one week longer than Atlantic. Resistant to race Ro1 of the golden nematode.

NY173 (Q38-4) = J110-12 x F31-3 (2013) Full season chipstock.

- In four Tompkins County trials over the past three years, marketable yields averaged 104% of Atlantic.
- Yield in Steuben and Wyoming counties averaged 102% of Atlantic in 2020.
- Total yield in National Chip Processing Trials in 2020 averaged 92% of Atlantic (6 locations, but small plots).

Tubers are round/compressed with lightly textured skin. Low levels of pickouts (secondary growth and growth cracks) and internal defects (hollow heart) have been observed. Specific gravity has averaged 0.008 less than Atlantic (6 trials). Chip color from 43F storage in December, January and February (2018 crop season) averaged 5.3 compared to 4.8 for Snowden (lower is better). Chip color from 43F averaged 3.0 vs 4.7 in 2019. Moderately resistant to common scab. Tuber dormancy is about one week longer than Atlantic. Likely resistant to race Ro1 of the golden nematode (needs more testing to confirm).

NY174 (Q106-13) = NY148 x E48-2 (2013) Full season chipstock.

- In four Tompkins County trials over the past three years, marketable yields averaged 100% of Atlantic.

- Yield in Steuben and Wyoming counties averaged 135% of Atlantic in 2020.

- Total yield in National Chip Processing Trials in 2020 averaged 113% of Atlantic (6 locations, but small plots).

Tubers are round with lightly textured skin. Low levels of pickouts (secondary growth and growth cracks) and internal defects (hollow heart and brown center) have been observed. Specific gravity has averaged 0.003 less than Atlantic (6 trials). Chip color from 43F storage in January and February (2018 crop season) averaged 4.0 compared to 4.2 for Snowden (lower is better). Chip color from 43F in December, January and February averaged 3.0 vs 4.7 in 2019. Intermediate reaction to common scab. Tuber dormancy is about two weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode.

Whatever happened to …? Brief updates on clones with paragraph descriptions in our 2019 report, but not in 2020.

NY149. Yellow flesh. Has now been in small scale commercial production for several years.

Lady Liberty. Chipping clone. Widely grown in 2020.

NY155. Niche-market pink skinned tablestock. Small amounts of seed still available from us.

NY157. Chipping clone. We stopped evaluating it because of unusual internal necrosis in 2018.

NY161. Yellow flesh tablestock. We stopped evaluating it because it sometimes has too many growth cracks. Small amounts of seed still available from us.

NY162. Chipping clone. Dropped because of a fry color defect on chip edges.

NY164. Red skinned tablestock. We didn't evaluate in 2020 because, in 2019, we considered it too susceptible to skinning. It nevertheless looked so pretty as a red spacer in our seed plots in 2020 that we decided to resurrect it and resume evaluation…

NY166. Chipping clone. We stopped evaluating it because of lowish specific gravity and higher-than-average susceptibility to internal necrosis.

NY167. Tablestock. Dropped for irregular shape and variable yield.

NY170. Chipping clone. Dropped because glycoalkaloid levels were too high.

2020 Summary of Yield Trials

Marketable yield larger than 1 7/8" (including green tubers).
Performance given as % of check variety.

	Ellis Hollow		County		
	Chip Trial	Tablestock Trial	Wayne Marion	Steuben Arkport	Wyoming Pike
Atlantic	**100**			**100**	**100**
Snowden	105			98	93
Lamoka	88				86
Eva		**100**	**100**		
NY160 (pink)		72			
NY163	86			87	58
NY165	105			104	99
NY166	85				
NY168	82			91	81
NY169	86			71	62
NY171		91	95		
Q29-1	97			95	91
Q29-2	113				
Q38-4	107			96	92
Q106-13	113			127	129
Q112-5		92	105		
R1-7	95				
R3-5	110				
R15-4		92	131		
R101-2	96				
R102-3	109				
R107-4	100				
R107-6	85				
R107-11	95				
R203-1		87	114		
R213-2		77	119		

2020 Summary of Specific Gravities

Entries show differences (in units of 0.001) from Atlantic

	Ellis Hollow	County	
	Chip Trial	Steuben Arkport	Wyoming Pike
Atlantic	**1.087**	**1.088**	**1.103**
Snowden	-4	0	-5
Lamoka	-10		-2
NY163	0	+8	+2
NY165	-8	-1	-5
NY166	-9		
NY168	-6	+3	-2
NY169	-5	+9	0
Q29-1	-6	1	+4
Q29-2	-3		
Q38-4	-6	-6	-8
Q106-13	0	+1	-1
R1-7	-10		
R3-5	-5		
R101-2	-9		
R102-3	-9		
R107-4	0		
R107-6	+4		
R107-11	+2		

In memory of Siegelinde Brunhilde De Jong (1933-2020).

Wife of one northeastern potato breeder, mother of another.

Results from Cornell Breeding Program Trials

Walter De Jong and Robert Plaisted

2020 Advanced and Intermediate Chipping Clone Yield Trial, Ellis Hollow

Plots 2 rows x 20', hills spaced at 8.2"
Number of replicates for each clone indicated in parentheses
Planted May 20, harvested September 18. Vine kill applied September 4.

	cwt/acre		%	pickout		% internal defects			appear.	specific
	>1 7/8"	>2 1/2"	>2 1/2"	cwt/A	type	HHT	IN	BC	score	gravity
Andover (2)	296	216	73	19	gc, k	5	0	0	3.5	1.077
Atlantic (4)	337	256	76	28	gc, 2g	43	15	3	3.4	1.087
Brodie (4)	316	245	77	13	k	3	15	3	3.5	1.072
Lamoka (4)	297	229	77	17	gc	0	0	0	3.4	1.077
Snowden (4)	355	262	74	4	gc, k	8	0	18	3.1	1.083
Waneta (2)	200	143	71	3	gc	0	0	0	3.7	1.073
NY163 (4)	289	116	40	8	2g	0	0	0	3.4	1.087
NY165 (4)	354	241	68	7	2g	0	0	0	3.5	1.079
NY166 (4)	288	123	43	3	k	0	28	0	3.5	1.078
NY168 (4)	275	164	60	2	k, gc	0	5	0	3.3	1.081
NY169 (4)	290	193	67	7	gc	5	18	0	3.4	1.082
Q29-1 (4)	326	177	54	13	2g, gc	5	10	3	3.4	1.081
Q29-2 (4)	382	231	61	7	2g, gc	0	5	3	3.4	1.084
Q38-4 (4)	359	190	53	4	gc, 2g	0	0	0	3.4	1.081
Q106-13 (4)	380	285	75	4	2g, gc	0	0	3	3.4	1.087
R1-7 (3)	319	218	68	1	k	0	0	0	3.6	1.077
R2-2 (3)	229	154	67	16	gc	3	10	10	3.5	1.075
R3-5 (3)	372	272	73	4	2g, gc	10	3	0	3.5	1.082
R5-6 (3)	281	72	26	4	2g	0	3	0	3.5	1.083
R10-4 (3)	290	138	48	1	2g, gc	0	0	0	3.5	1.080
R101-2 (3)	325	141	43	5	gc	0	10	0	3.4	1.078
R101-7 (3)	349	226	65	13	gc, 2g	3	0	27	3.3	1.076
R102-3 (3)	369	273	74	2	gc, 2g	0	3	7	3.2	1.078
R102-7 (3)	310	225	73	11	2g, gc	27	3	23	3.3	1.086
R102-8 (3)	279	184	66	21	gc	0	3	7	3.3	1.078
R105-11 (3)	356	251	70	6	gc, 2g	0	3	0	3.3	1.069
R107-4 (3)	338	185	55	1	gc	3	0	0	3.3	1.087
R107-6 (3)	286	134	47	2	2g, gc	0	7	0	3.4	1.091
R107-11 (2)	320	188	59	15	gc	5	0	0	3.5	1.089

2020 First Stage Chipping Clone Yield Trial, Ellis Hollow

Plots 2 rows x 15', hills spaced at 8.2"

3 Replicates

Planted May 19, harvested September 18. Vine kill applied September 4.

	cwt/acre		%	pickout		% internal defects			appear.	specific
	>1 7/8"	>2 1/2"	>2 1/2"	cwt/A	type	HHT	IN	BC	score	gravity
Atlantic	331	231	70	33	2g, gc	30	10	0	3.5	1.085
Snowden	342	239	70	0	-	7	7	7	3.0	1.081
S1-4	310	171	55	13	gc	3	3	0	3.0	1.083
S2-1	238	70	29	9	2g, k	3	7	3	3.4	1.081
S2-2	286	119	42	17	k, 2g	3	13	0	3.6	1.079
S4-3	294	122	42	6	gc, k	0	3	0	3.5	1.084
S5-3	279	70	25	2	gc, k	0	0	3	3.4	1.081
S7-2	287	162	57	3	k	0	3	7	3.4	1.089
S7-9	289	145	50	1	gc	0	10	0	3.0	1.082
S8-2	332	177	53	1	gc	0	3	0	3.1	1.086
S8-3	307	116	38	0	-	0	43	0	3.5	1.089
S8-14	251	87	35	69	gc	3	3	0	3.0	1.088
S9-8	251	71	28	8	gc	0	0	0	3.1	1.092
S12-1	205	76	37	20	gc	0	10	0	3.2	1.082
S17-5	326	212	65	26	gc	10	0	0	3.6	1.082
S18-4	302	119	39	1	2g	7	0	0	3.5	1.086
S21-2	232	87	38	5	gc	0	3	0	3.2	1.078
S21-4	271	142	52	4	2g, gc	27	7	17	3.0	1.074
S26-1	302	141	47	0	-	10	3	0	3.5	1.082
S26-2	300	152	51	6	k, 2g	3	0	0	3.4	1.083
S26-3	369	252	68	9	2g, gc	0	0	0	3.1	1.083
S27-3	312	183	59	16	gc	3	0	0	3.1	1.076
S27-5	229	87	38	2	mis	0	0	3	3.3	1.083
S28-5	344	241	70	12	gc	40	0	3	3.1	1.079
S28-8	323	208	65	0	-	0	7	0	3.3	1.080
S35-1	283	183	65	20	gc	7	10	0	3.5	1.076
S37-2	331	217	66	2	gc	3	0	0	3.5	1.085

2020 Tablestock Trial, Ellis Hollow

Plots 2 rows x 15', hills spaced at 8.2"
3 replicates (unless indicated otherwise in parentheses)
Planted May 19, harvested September 22. Vine kill applied September 4.

	cwt/acre		%	pickout		% internal defects			appear.	specific
	>1 7/8"	>2 1/2"	>2 1/2"	cwt/A	type	HHT	IN	BC	score	gravity
Chieftain	324	225	69	19	gc, 2g	0	0	0	3.6	1.066
Eva	367	275	75	12	gc, 2g	3	0	0	3.7	1.076
Lehigh	331	250	76	31	gc, 2g	0	0	0	3.5	1.075
Norland (2)	216	91	42	13	gc, 2g	0	0	0	1.8	1.059
Reba	369	297	80	9	gc, 2g	3	3	0	3.3	1.071
Yukon Gold (2)	298	233	78	11	2g, gc	5	10	5	3.3	1.065
NY160	266	90	34	15	2g	0	0	0	3.6	1.071
NY171	333	150	45	4	2g, gc	3	0	0	3.7	1.071
Q112-5	336	129	38	2	2g	0	0	0	3.5	1.065
R15-4	337	194	58	8	gc, 2g	0	0	0	3.4	1.086
R203-1	318	161	51	14	gc, 2g	3	0	17	3.7	1.068
R213-2 (2)	281	49	17	3	2g	0	0	0	3.6	1.072
S40-1	313	157	50	2	gc, 2g	7	0	3	3.5	1.068
S43-1	118	6	5	23	2g	0	37	0	3.4	1.085
S47-3	64	2	3	7	2g	0	0	0	3.2	1.089
S47-5	93	7	7	31	2g	0	0	0	3.3	1.078
S48-1	285	122	42	2	gc, k	7	7	0	3.7	1.069
S51-1	263	85	32	17	2g, gc	0	17	0	3.6	1.058
S74-2	157	23	15	5	2g, gc	0	0	0	3.5	1.062
S77-1	78	5	6	0	-	0	0	0	3.6	1.074

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2019 Crop Season Chip Color Scores - University Trials

43F Storage

One location (Ellis Hollow)

	VISUAL SCORES			
	DEC	JAN	FEB	Average 3 MONTHS
SNOWDEN	5.0	4.0	5.0	4.7
LAMOKA	3.0	3.0	3.0	3.0
NY163	2.0	2.0	3.0	2.3
NY165	4.0	4.0	4.0	4.0
NY166	3.0	3.0	3.0	3.0
NY168	3.0	4.0	3.0	3.3
NY169 (P14-1)	3.0	3.0	2.0	2.7
NY172 (Q29-1)	4.0	4.0	4.0	4.0
NY173 (Q38-4)	3.0	3.0	3.0	3.0
NY174 (Q106-13)	3.0	3.0	3.0	3.0

VISUAL CHIP SCALE: 1 - 10

1 = best

4 = marginal

5 and over = not acceptable

Samples were not reconditioned before chipping

Average Chip Color over Two Years - University Trials

Out of 43F storage: 2018 - 2019 crop seasons.
No reconditioning

	VISUAL SCORES			
	DEC	JAN	FEB	AVG
Snowden	5.3	4.4	4.5	4.7
Lamoka	3.8	3.5	3.0	3.4
NY163	2.7	2.4	3.0	2.7
NY165	3.8	3.8	3.2	3.6
NY166	3.3	3.3	3.2	3.3
NY168	3.8	3.5	3.0	3.4
NY169 (P14-1)	3.8	2.5	2.0	2.8
NY172 (Q29-1)	4.0	3.5	3.3	3.6
NY173 (Q38-4)	4.5	4.0	4.0	4.2
NY174 (Q106-13)	(ND)	3.5	3.5	3.5

VISUAL CHIP SCALE: 1 - 10

1 = best
4 = marginal
5 and over = not acceptable

Scab Score Summary

Tubers evaluated at harvest from scab-infested plots in Ellis Hollow (EH) and Varna (V)

0 = free of scab, 5 = very susceptible

LOCATION:	2019 EH	2018 EH	2017 EH	2015 EH	2014 EH	2013 EH	2012 V	2011 EH	2010 EH	2009 V	2009 EH	08 V	08 EH	07 V	07 EH
Brodie					4.7	4.5			4.7	2.7	3.3	3.0	3.7	3.7	4.3
Chieftain		2.7	3.3	3.0	3.5	4.0		3.3	5.0	1.0	3.0		3.5	1.3	3.7
Chippewa			5.0	5.0	4.7	4.5	3.0		5.0	4.3	5.0	4.7	5.0	4.3	5.0
Katahdin	2.3	3.7	4.4	4.7	4.7	4.0	2.3	4.0	4.8	3.7	4.3	4.3	4.0	4.0	4.3
Lamoka	1.3		2.7		2.8				2.3	1.3	2.7	2.3	2.3	2.7	3.3
Lady Liberty		2.0		2.3	2.2	2.0	2.0	2.8							
Nordonna			3.3	2.3	3.7							1.0	1.5	1.7	1.0
Pike	1.2	2.0	3.3	2.7	2.4		2.7		1.7	1.3	1.7	1.5	2.0	2.7	2.7
Reba									4.0	2.0	3.0			2.7	3.3
Snowden									5.0	1.7	4.0		3.0	4.0	3.7
Superior		2.3	3.0	3.0	3.5	2.5	2.3	2.8	2.3	2.0	2.7	1.7	2.0	3.0	2.0
Upstate Abundance				2.7	3.0	3.0	2.5	3.7	2.3						
Waneta									2.3	2.0	1.0	1.3	2.3	3.0	3.3
NY149 (yellow)			3.2	2.7			2.3	2.7	3.0						
NY155 (pale pink)	2.0	2.0	3.0	2.7	3.0	3.0		2.7							
NY157 (chip)	1.0	2.3	2.8	2.0	2.8	2.5									
NY160 (pink)				2.3	2.7										
NY161 (yellow)	1.0		2.3	2.3	2.8										
NY162 (chip)	2.0	2.3	3.7	2.0	3.3	2.5									
NY163 (chip)	2.0	2.0	3.0	2.0	2.8										
NY165 (chip)	1.0	2.0	2.3	2.0											
NY167 (white)	2.0	2.0	2.3												
NY168 (chip)	2.7	3.2	3.8												
NY169 (chip)	1.0	2.0	3.5												
NY171 (white/purp	1.3	2.3													
NY172 (chip)	1.3	2.0													
NY173 (chip)	1.0	2.7													
NY174 (chip)	2.3	2.7													

Scab pressure was poor in our 2019 trial. No scab trial in 2020.

Tuber Dormancy Relative to Atlantic

Replicate 10 tuber samples from each clone were stored in the dark at room temperature. The number of weeks that each clone sprouted earlier (-) or later (+) than Atlantic is shown. Atlantic typically breaks dormancy in late October to mid November

Dormancy is considered broken when half or more of the sample has 1/4" long sprouts.

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Round whites:											
Andover				0		1		3	3	3	3
Algonquin					4	0	4	3	2	2	2
Atlantic	0	0	0	0	0	0	0	0	0	0	0
Brodie	0					4	5	7	6	6	7
Eva		8		5		6		7	8		
Lady Liberty	0	3		4	5	2	4	3	5		
Lamoka	0	3	1	1		0		3	0	1	1
Reba	2		3	2		2		4		5	5
Snowden	0	2	2	2	0	0		2	2	2	2
Upstate Abundance				0	3	3	3	2	2	2	2
Waneta	4	8		7	9	6		10	7	8	8
Yukon Gold		2	1	1	2				0	1	
NY163	0	2	1	2	1						
NY165	0	3	2	1							
NY166	2	4	2	1							
NY168	3	6	4	0							
NY169	-2	0									
NY171	2	4									
NY172 (Q29-1)	0	2									
NY173 (Q38-4)	0	2									
NY174 (Q106-13)	2	2									
Reds and purples:											
Chieftain	0	2		0		0	0	2	1	2	1
Norland DR	-2	-2		-2		-4		-1			
Nordonna	0	0		-2		-2	0	2	0	1	2
Red Maria						1	3	3	4	5	3
NY160						-2					
Ad. Blue						0	0	-2			
Ad. Red						2					

(blank)

Data from Freeville and Upstate County Farm Trials
Walter De Jong and Don Halseth

Upstate New York GrowerTable 1. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil white-skinned variety trial grown near Marion, New York - 2020.

Variety or Clone	Total Yield	Mkt. Yield		Size Distribution[1] (% of total yield)				Mean Tuber		Percent External Tuber Defects				Percent Internal Tuber Defects				Specific
	Cwt/A	Cwt/A	% of Std.	1	2	3	4	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	BC	VD	NEC	Gravity
EVA	272	227	100	8	72	20	0	6.3	4.6	7	1	0	0	0	0	0	0	1.071
NY171	310	213	94	20	74	6	0	8.3	3.9	9	1	0	1	0	0	0	0	1.065
Q112-5	322	226	100	12	79	9	0	9.6	3.5	13	0	3	1	5	5	0	0	1.058
R15-4	382	275	121	7	64	28	0	8.9	4.4	16	3	1	1	0	0	0	0	1.079
R203-1	366	212	93	9	77	13	1	8.8	4.3	31	0	0	1	10	0	0	0	1.063
R213-2	363	268	118	18	80	2	0	13.0	2.9	8	0	0	0	0	0	0	0	1.065
S40-1 *	291	184	81	15	75	10	0	9.0	3.4	20	1	2	0	10	0	0	0	1.068
S43-1 *	153	50	22	54	46	0	0	9.6	1.7	11	1	1	0	0	0	0	0	1.075
S48-1	338	253	112	14	80	6	0	10.6	3.3	10	1	0	1	0	0	0	0	1.067
S51-1	265	158	70	23	75	2	0	8.8	3.2	14	2	2	0	0	0	0	0	<1.058
Average:	306	207	91	18	72	10	0	9	4	14	1	1	1	3	1	0	0	NA
Maximum:	382	275	121	54	80	28	1	13	4.6	31	3	3	1	10	5	0	0	1.079
Minimum:	153	50	22	7	46	0	0	6	1.7	7	0	0	0	0	0	0	0	<1.058

Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: June 4 Vinekill Date: September 1 Harvest Date: September 29

Fertilizer: 98 N-76 P-248 K lbs. per acre on June 4 Vinekill: 1 pt./a Reglone + crop oil Irrigation: none

Upstate New York Grower Table 2. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil red and purple-skinned variety trial grown near Marion, New York - 2020.

Variety or Clone	Total Yield	Mkt. Yield		Size Distribution[1] (% of total yield)				Mean Tuber		Percent External Tuber Defects				Percent Internal Tuber Defects				Specific
			% of															
	Cwt/A	Cwt/A	Std.	1	2	3	4	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	BC	VD	NEC	Gravity
BLACKBERRY purple	342	250	108	22	72	6	0	13.3	2.7	0	1	2	1	5	0	0	0	1.061
NORLAND red	291	231	100	11	75	14	0	8.5	3.6	4	1	4	1	0	0	0	0	<1.060
S47-2 purple	102	0	0	99	1	0	0	11.1	1.0	1	2	1	0	0	0	0	0	1.060
S47-3 purple	152	68	29	50	50	0	0	8.0	2.0	1	3	0	0	0	0	0	0	1.080
S47-5 purple	78	26	11	64	36	0	0	5.4	1.5	0	3	0	0	0	0	0	0	1.064
S74-2 red	135	65	28	48	52	0	0	9.5	1.5	2	0	1	0	0	0	0	0	1.060
S77-1 red	171	65	28	53	46	1	0	11.7	1.5	8	0	0	0	0	0	0	0	1.062
Average:	181	101	44	50	47	3	0	10	2	2	1	1	0	1	0	0	0	NA
Maximum:	342	250	108	99	75	14	0	13	3.6	8	3	4	1	5	0	0	0	1.080
Minimum:	78	0	0	11	1	0	0	5	1.0	0	0	0	0	0	0	0	0	<1.060

Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: June 4 Vinekill Date: September 1 Harvest Date: September 29

Fertilizer: 98 N-76 P-248 K lbs. per acre on June 4 Vinekill: 1 pt./a Reglone + crop oil Irrigation: none

Upstate New York Grower Table 3. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Steuben County chipping variety trial grown near Arkport, New York - 2020.

Variety or Clone	Total Yield	Mkt. Yield		Size Distribution[1] (% of total yield)				Mean Tuber		Percent External Tuber Defects				Percent Internal Tuber Defects				Spec.
	Cwt/A	Cwt/A	% of Std.	1	2	3	4	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	BC	VD	NEC	Grav.
ATLANTIC	214	175	100	13	66	21	0	5.9	4.1	4	2	0	0	0	0	0	0	1.088
LADY LIBERTY	178	134	76	23	75	3	0	6.4	3.1	2	1	0	0	0	0	0	5	1.088
MSZ219-01	186	166	95	6	70	24	0	4.7	4.4	2	2	2	0	0	0	0	5	1.085
MSZ219-13	174	147	84	14	67	19	0	5.1	3.7	2	0	0	0	0	0	0	60	1.088
NY163	203	156	89	20	79	1	0	7.4	3.0	1	2	0	0	0	0	0	0	1.096
NY165	230	184	105	16	68	16	0	7.0	3.6	3	1	0	0	0	0	0	0	1.087
NY168	199	162	93	16	77	7	0	7.0	3.1	2	0	0	0	0	0	0	0	1.091
NY169	177	129	73	25	69	5	0	6.8	2.9	1	2	0	0	0	0	0	0	1.097
Q29-1	211	163	93	15	77	8	0	6.8	3.4	6	1	0	0	0	0	0	0	1.089
Q38-4	222	169	97	20	75	5	0	8.6	2.9	3	1	0	0	0	0	0	0	1.082
Q106-13	258	230	132	8	65	26	1	6.4	4.4	1	1	0	0	0	0	0	0	1.089
SNOWDEN	218	177	101	17	79	3	0	7.7	3.1	1	0	0	0	0	0	25	0	1.088
Average:	206	166	95	16	72	11	0	6.6	3.5	2	1	0	0	0	0	2	6	1.089
Maximum:	258	230	132	25	79	26	1	8.6	4.4	6	2	2	0	0	0	25	60	1.097
Minimum:	174	129	73	6	65	1	0	4.7	2.9	1	0	0	0	0	0	0	0	1.082

[1]Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: June 9 Vinekill Dates: September 1 and 8 Harvest Date: October 2

Fertilizer: 128N - 256P- 128K - 5S - 5Zn - 0.24B lbs. per acre Vinekill: 1 pt./a Diquat Irrigation: none

6 oz. Quadris/acre and 2.67 oz. Platinum/acre 36" bed width by 8 inch within row spacing

Upstate New York Grower Table 4. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wyoming County chipping variety trial grown near Pike, New York - 2020.

Variety or Clone	Total Yield	Mkt. Yield		Size Distribution[1] (% of total yield)				Mean Tuber		Percent External Tuber Defects				Percent Internal Tuber Defects				Spec.
	Cwt/A	Cwt/A	% of Std.	1	2	3	4	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	BC	VD	NEC	Grav.
ATLANTIC	260	209	100	15	81	5	0	7.9	3.5	5	0	0	0	55	0	0	0	1.103
LAMOKA	241	155	74	14	74	12	0	6.2	4.1	21	0	0	0	5	0	0	0	1.101
MSZ219-01	210	170	81	12	69	18	1	5.3	4.1	4	0	2	0	0	0	5	0	1.097
MSZ219-13	237	193	92	12	69	19	0	6.1	4.1	8	0	1	0	0	0	0	0	1.106
NY163	225	125	60	45	55	0	0	10.0	2.3	1	0	0	0	0	0	0	0	1.105
NY165	269	205	98	18	77	5	0	8.8	3.2	6	0	0	0	0	0	0	0	1.098
NY168	250	165	79	27	72	1	0	9.6	2.7	7	0	0	0	0	0	0	0	1.101
NY169	213	131	63	36	64	1	0	9.3	2.4	3	0	0	0	0	0	10	0	1.103
Q29-1	255	185	89	18	80	2	0	8.3	3.2	8	0	0	0	0	0	0	0	1.107
Q38-4	267	189	91	23	72	5	0	9.2	3.0	7	0	0	0	0	5	10	0	1.095
Q106-13	313	274	131	9	75	16	0	8.1	4.0	3	0	0	0	0	0	0	0	1.102
SNOWDEN	254	196	94	19	78	3	0	8.4	3.1	4	0	0	0	15	0	0	0	1.098
Average:	250	183	88	21	72	7	0	8.1	3.3	6	0	0	0	6	0	2	0	1.101
Maximum:	313	274	131	45	81	19	1	10.0	4.1	21	0	2	0	55	5	10	0	1.107
Minimum:	210	125	60	9	55	0	0	5.3	2.3	1	0	0	0	0	0	0	0	1.095

[1]Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: June 2 Vinekill Dates: September 17 and 22 Harvest Date: October 14

Fertilizer: 180N - 151P- 228K - 6.1Mg - 37.5Ca lbs./a Vinekill: 1.5 pt./a Reglone and Surfactant (2x) Irrigation: 3 inches Rainfall: 10.5 inches

Other: 12.8 oz/ac Ultra Flourish in furrow 34" bed width by 8" within row spacing

Mt. Plaisted Lane on Mt. Pleasant