RUTGERS
New Jersey Agricultural Experiment Station

Observations on Potato Varieties

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Spring Potato Meeting

Rutgers Agriculture Research & Extension Center

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Atlantic

In 172 Tests over the last 27 years

Total yield 430 cwt/a

Marketable yield 387 cwt/a

Specific Gravity 1.080

Atlantic

Very round white netted tubers with very good appearance
Early-mid maturity with high yields & high specific gravity
Good chip color immediately after harvest

In 172 trials Over 27 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	_____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
430	387	356	--	1.080	1.068	--	92	56	4

Heat necrosis, hollow heart, and common scab are all serious problems
Susceptible to common scab, and growth cracks
Large tuber size
Tolerance to pink rot
Skins badly when dug green

Atlantic

- Heat Necrosis starts to show up in Early-July and is tolerable in most years until early-August
- Heat Necrosis was a major problem In 2009
- Early 8/09 19/40 rated moderated HH 21/40
- Mid 8/19 30/30 rated very severe HH 22/30
- Late 9/02 40/40 rated very severe HH 19/40
- Early August 20 to 30 % rated 7 to 5
  2 weeks late 75 to 100% rated 4 to 2
- Keeping the available Calcium up (1400 lb/a) in your soil may help reduce Heat Necrosis but it will not solve the problem


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Snowden

Round buff colored netted tubers with good appearance
Late season maturity with good yield & high specific gravity
Chips good out of the field and storage

In 46 trials Over 21 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	_____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
415	381	305	404	1.077	1.067	1.081	93	48	2

Internal heat necrosis is always a concern but not a severe as Atlantic

Early	7/27/10	7/80 rated mild (7)	vs Atlantic with 51/80 rated (5)
Late	8/25/10	28/40 rated severe (5)	vs Atlantic with 36/40 rated (3)

Hollow heart is not a problem
Very susceptible to common pitted scab

Chipping Potatoes

Atlantic Replacements

AF338-17

Round, buff, slightly netted, tubers with ok appearance
mid- season maturity with good yield and specific gravity
Chips good out of the field

In 6 trials Over 4 years

Total Cwt/a	Marketable Cwt/a	Sup.	Atl.	Specific Gravity	Sup.	Atl.	%Over 1 7/8"	%Over 2 1/2"	% Culls
379	317	280	374	1.078	1.068	1.081	96	65	13

Internal heat necrosis and hollow heart are not a concern
Tolerant to common scab
External defects were mainly misshapen tubers and few knobs
It may have a place for chipping out of the field after Atlantic.
In 2010, it never had unmarketable levels of heat necrosis when Atlantic and Dakota Diamond were unacceptable in every harvest after July 27.

Harley Blackwell

In 36 Tests over the last 21 years

Marketable yield 362 vs 412 for Atlantic

Specific Gravity 1.072 vs 1.082 for Atlantic

Harley Blackwell

Very nice round netted tubers with good appearance
Early-mid season maturity with good yield & moderate gravity
Chips good immediately after harvest

In 36 trials Over 21 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	_____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
420	362	327	412	1.070	1.068	1.082	90	43	5

Internal heat necrosis and hollow heart are not a problem
Scab resistance (near Superior)
Few tuber defects
Excellent chip color out of the field,
but the low gravity is a problem with some chippers.
Good baking and boiling quality, but a heavy netted skin reduces its fresh market value.
Large set equals smaller tuber size

Dakota Diamond

In 9 Tests over 6 years

Marketable yield 409 vs 397 for Atlantic

Specific Gravity 1.084 vs 1.082 for Atlantic

Dakota Diamond

Large round moderate smooth attractive tubers
Medium-late vine maturity with very good yield and gravity
Ok chip color immediately after harvest

In 9 trials Over 6 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
451	409	353	397	1.084	1.069	1.082	96	64	5

Internal heat necrosis need to be watched closely
It is about the same as Atlantic.
Hollow heart is much less than Atlantic, and not a problem
Moderately common scab resistance
Few external tuber defects

Beacon Chipper

In 5 Tests over 3 years

Marketable yield 340 vs 384 for Atlantic

Specific Gravity 1.074 vs 1.085 for Atlantic

Beacon Chipper

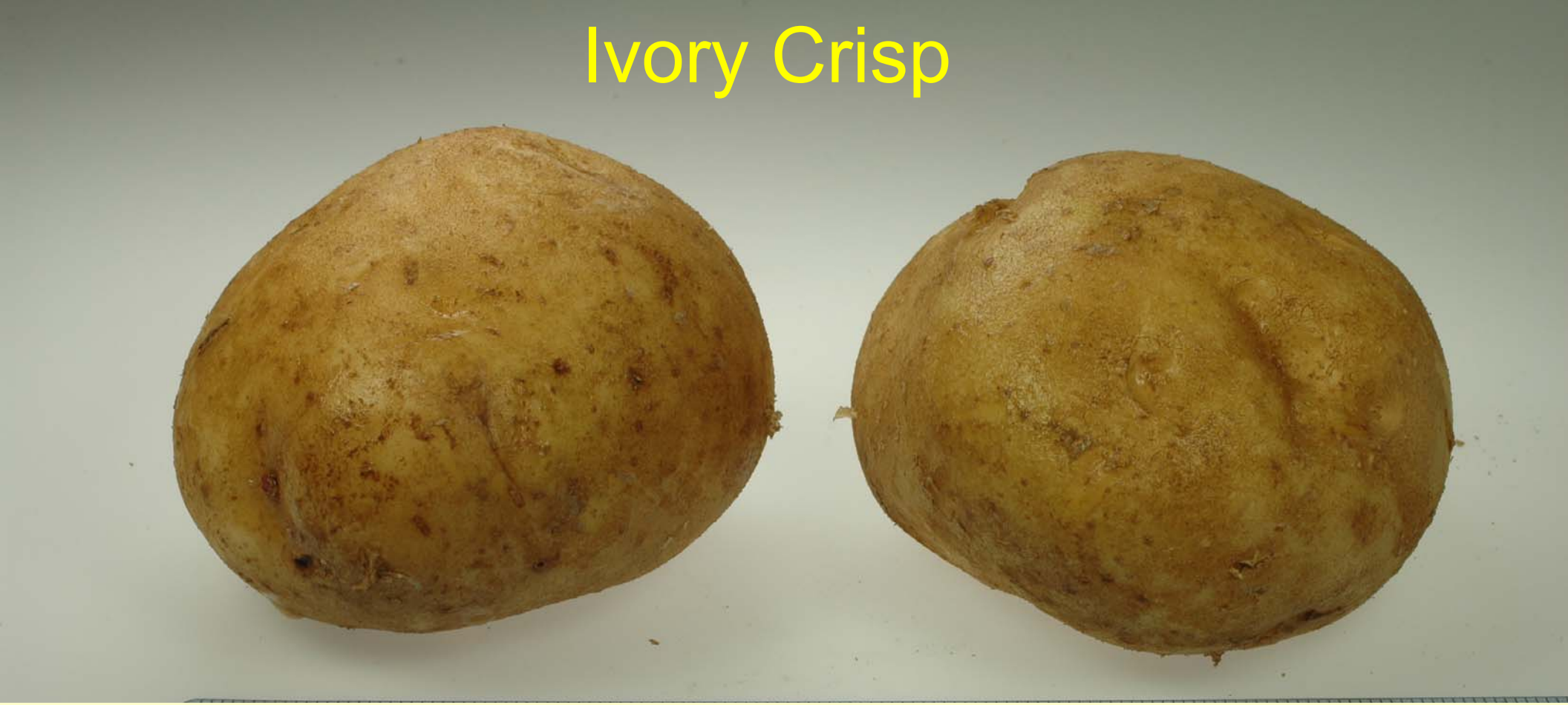
Nice round attractive netted tubers
Good chip color out of the field
Late maturing, large tuber size
In 9 trials Over 6 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
451	409	353	397	1.084	1.069	1.082	96	64	5

Internal heat necrosis has not been problem.
Hollow heart was at 25% in 2009
No tolerance to common scab
Tuber defects: some knobs, second growths, and scab


Ivory Crisp

Ivory Crisp



In 13 Tests over 6 years

Marketable yield 431 vs 403 for Atlantic

Specific Gravity 1.081 vs 1.084 for Atlantic

Ivory Crisp

Round to oblong, smooth, moderately attractive tubers
Mid-late chipping and table potato with good yields and gravity

In 13 trials Over 6 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	_____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
488	431	370	403	1.081	1.071	1.084	96	71	8

Internal heat necrosis and hollow heart have not been a problem.
Susceptible to common scab, pink rot, deep apical ends, attracted stems
Skins badly when dug early
In NJ, it chips out of the fields as good as Atlantic
It is used as a long cold storage chipper
Tuber defects: some growth cracks and scab


Dakota Crisp

Dakota Crisp

Round smooth white tubers with good appearance
Late maturing chipper with good yields and ok gravity

In 10 trials Over 5 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
499	406	380	434	1.075	1.069	1.082	94	64	15

Internal heat necrosis can be a problem.
In 2010, 10/40 rated (6) with Atlantic at 36/40 rated severe (4)
Hollow heart is not a problem
Susceptible to common scab, knobs, and growth cracks
In NJ, it chips ok out of the field. Has acceptably chip color from 45^{o}F
Suitable for baking, boiling or microwaving
where heat necrosis is not a problem
Produces flakes with good flavor, texture, and color

Marcy

Large round netted tubers with very good appearance
Late season chipper with good yields and ok gravity

In 27 trials Over 12 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
507	472	341	409	1.076	1.069	1.084	96	70	3

Internal heat necrosis can be a problem, but less than Atlantic
In 2007, 10/40 rated severe with Atlantic at 33/40 rated very severe
Hollow heart is not a problem
Resistance to common scab like Superior
Few external defects with blackspot and shatter bruises a concern
In NJ, it chips better then Atlantic out of the field. It is recommended for chips only as it is too netted for fresh market with some internal heat necrosis and large tuber size.

Waneta - NY138

In 15 Tests over 7 years

Marketable yield 342 vs 413 for Atlantic

Specific Gravity 1.072 vs 1.083 for Atlantic

Lower yield and gravity, excellent chips

Waneta - NY138

Large round smooth tubers with very good appearance
Mid-season chipper from field and storage

In 15 trials Over 7 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
372	342	360	413	1.072	1.069	1.083	96	69	4

Internal heat necrosis is not a problem
Hollow heart is generally not a problem
Tolerant to common scab
A few growth cracks and very little scab
Its a late storage chipper where specific gravity is less of a concern
In NJ, it chips very well out of the field, but the gravity in low and the yield is borderline
It has good eating quality

Lamoka - NY139

In 17 Tests over 8 years
Marketable yield 374 vs 409 for Atlantic
Specific Gravity 1.079 vs 1.083 for Atlantic
Good Chips, ok gravity and yield, nice tubers

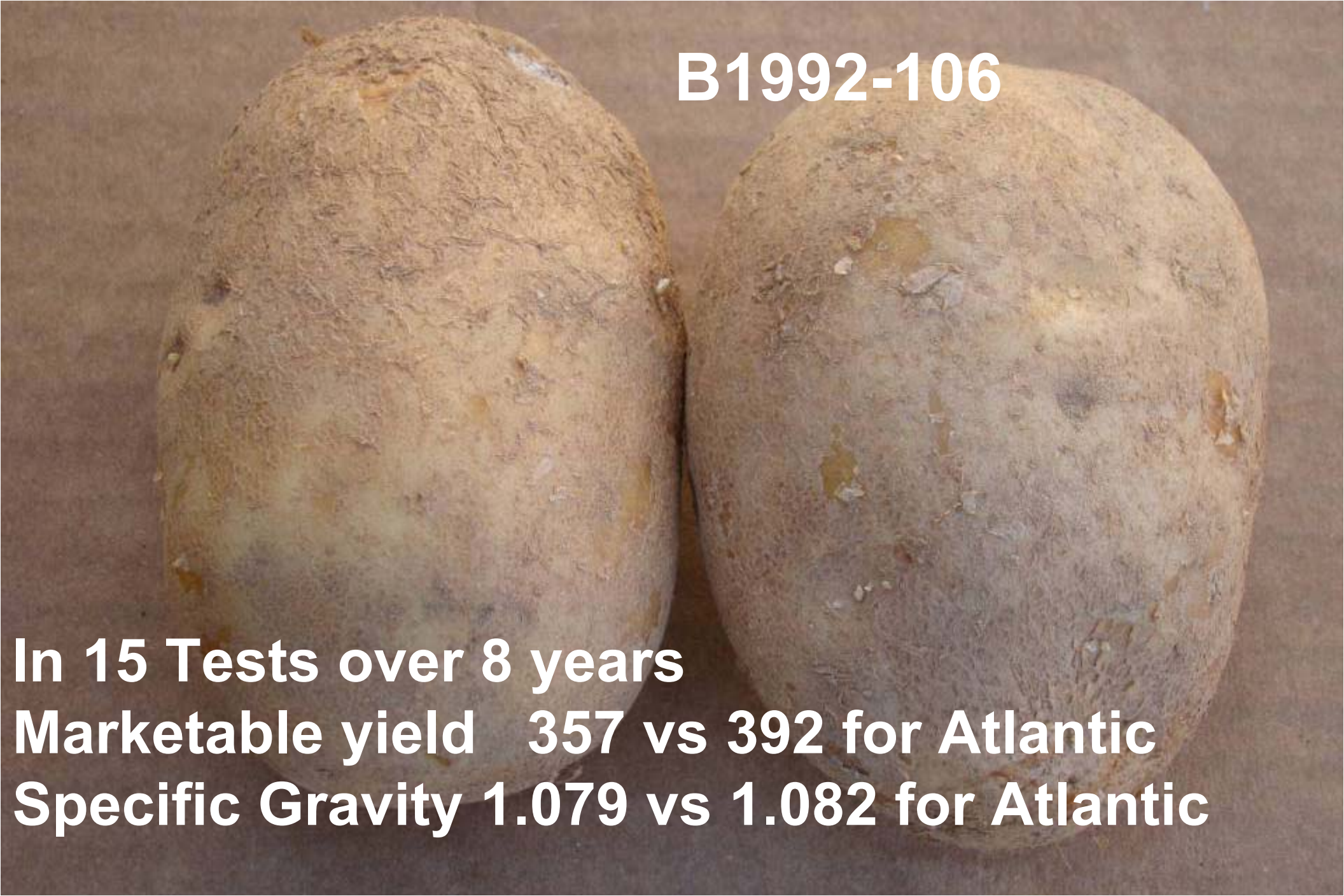
Lamoka - NY139

Round to oblong, smooth tubers with very good appearance
Mid-late season chipper from field and storage

In 17 trials Over 8 years

Total Cwt/a	Marketable Cwt/a			Specific Gravity			%Over 1 7/8"	%Over 2 1/2"	% Culls
		Sup.	Atl.		Sup.	Atl.			
414	374	365	409	1.079	1.069	1.083	94	54	4

Internal heat necrosis was low, except with higher numbers in 2008.
Hollow heart is not a problem.
No common scab resistance
A few growth cracks and little scab
In NJ, it chips very well out of the field, with good gravity and yield
It has good eating quality
Black spot bruise could be a concern


B1992-106
In 15 Tests over 8 years
Marketable yield 357 vs 392 for Atlantic
Specific Gravity 1.079 vs 1.082 for Atlantic

B1992-106

Round - oblong, netted tubers with good appearance
Mid-late season chipper out of the field with good yield

In 15 trials Over 8 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a	___	Sup.	Atl.	____	Sup.	Atl.	1 7/8"	2 1/2"	Culls
391	357	329	392	1.079	1.068	1.082	88	57	3

Internal heat necrosis is not a problem.
Hollow heart was a problem in only 2009 with 31% vs Atlantic at 56%
No common scab resistance
Few external defects are mainly growth cracks
In NJ, it chips very well out of the field, with good gravity and yield,
but does not chip out of the storage in PA.

Table Potatoes


Superior

Superior

Oblong-round, heavy netted tubers with ok appearance
Early season maturity with good yields on new ground
Good early skin set, keeps most of its skin when dug green

In 181 trials Over 27 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
358	321	--	394	1.067	--	1.082	93	46	4

Internal heat necrosis and hollow heart are not a problem.
Resistance to common scab, set tubers deep in soil, boils & bakes good, come up quick, and yields well on new ground or in a long rotation
External defects: knobs, growth cracks, dark netted skin, and deep eyes
Susceptible to: leafhoppers, pink rot, late and early blight, verticillium wilt, fusarium dry rot, heat stress, and short rotation.
In NJ it chips out of the field, with low specific gravity.
It is mainly used as a table potato with good boiling and baking qualities

Nitrogen Rate 2002

Superior

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2
50+ 0	279d	255c	1.060b	93b	24
50+ 50	360c	340b	1.062a	95ab	31
50+100	437a	406a	1.059b	96a	52
50+150	401b	384a	1.063a	97a	46

N Rate 2009 Superior

Planting 4/25,Topdress(Urea)5/19, harvest 8/25

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2	% Culls
50+ 25	226b	208	1.0698	97.9	81.3	6.6
50+ 50	308a	286	1.0700	97.1	80.4	4.3
50+ 75	276ab	250	1.0668	98.5	81.2	8.1
50+100	278ab	250	1.0698	98.2	84.5	7.9
50+125	309a	286	1.0682	97.6	82.8	5.5
50+150	291a	365	1.0672	98.2	79.6	7.9

N Rate 2010 Superior

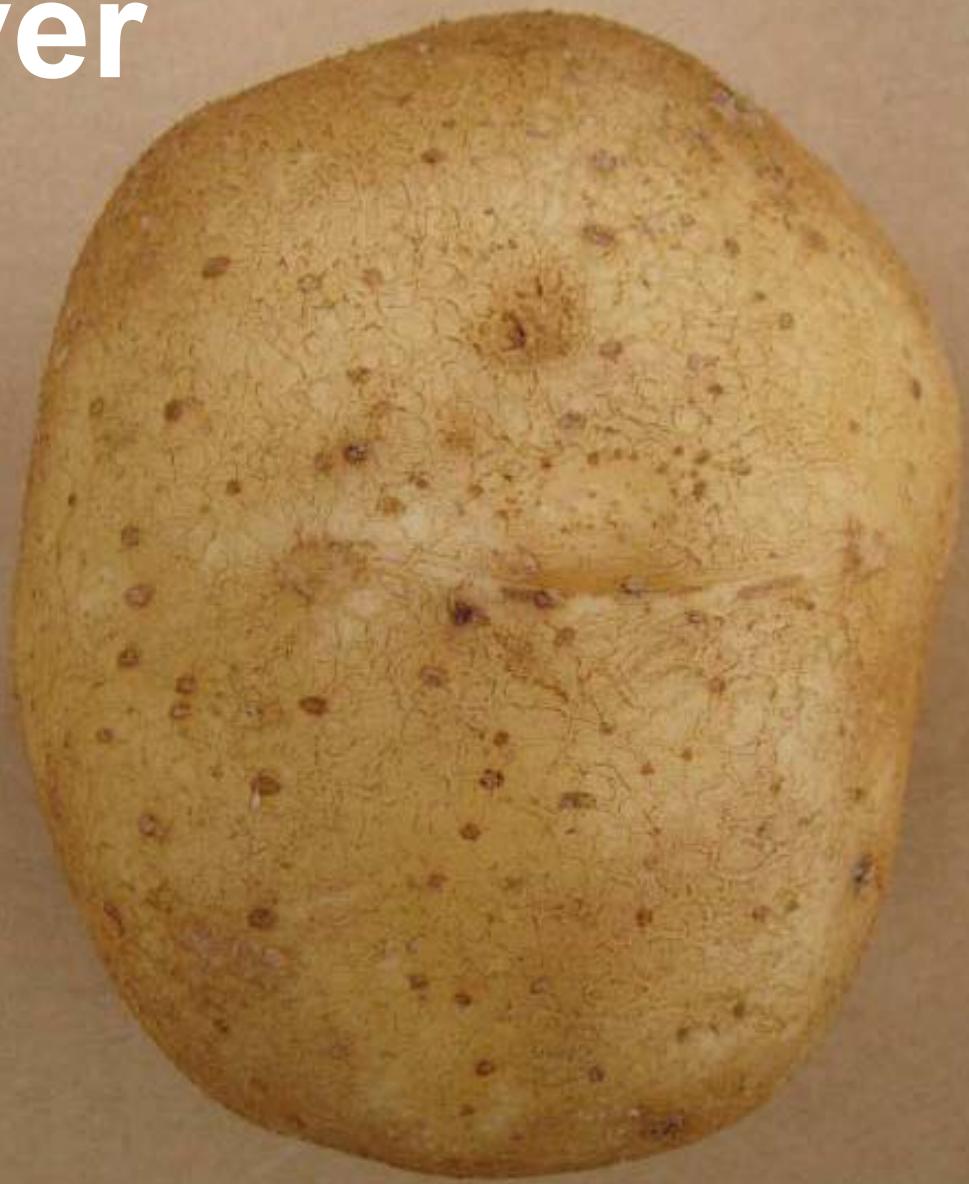
Planting 4/07,Topdress(Urea)5/10, harvest 8/24

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2	% Culls
50+ 25	235	220	1.066	94	38	2
50+ 50	247	232	1.065	95	38	2
50+ 75	260	245	1.066	96	50	2
50+100	242	232	1.065	96	50	1
50+125	249	234	1.064	97	48	3
50+150	244	230	1.065	97	47	3

Superior NJ '95

	Total Yield cwt/a	Specific Gravity	% Over 2 1/2"
9"	401 a	1.058 a	55 b
12"	381 a	1.059 a	66 a

Andover



Andover

Round, slightly netted tubers with very good appearance
Very early season table potato with excellent eating qualities
Excellent chip color from field or storage with good gravity
In 26 trials Over 14 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
312	274	320	401	1.075	1.069	1.082	89	33	3

Internal heat necrosis and hollow heart are not a problem
Resistance to common scab

Problems: Low and variable yield and size susceptible to heat stress, air pollution, and leaf hoppers.

Andover 2005

Nitr.	Total	Market	Spec. Grav.	1 7/8″ 4″	2 1/2″ 4″
50+ 0	438b	404b	1.0692a	95a	38c
50+ 50	479a	440ab	1.0675ab	94a	41c
50+100	497a	460a	1.0667b	95a	48b
50+150	489a	452a	1.0676ab	96a	53a
Spacing	-	-	-	-	-
6″	507a	459a	1.0684a	93b	34c
7″	494a	458a	1.0687a	95a	42b
9″	453b	423b	1.0670a	95a	48b
12″	450b	418b	1.0669a	96a	56a

Reba

In 52 Tests over the last 20 years

Marketable yield 375 vs 341 for Superior

Specific Gravity 1.071 vs 1.069 for Superior 3/1/11

Reba

Round white smooth mod. flat tubers with good appearance
Late season maturity with good yields and cooking quality
In 52 trials Over 20 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
410	375	341	415	1.071	1.069	1.082	94	56	3

Internal heat necrosis is not a problem
Hollow heart can be a problem in cool years like 2009 with 27%
Good tolerance to common scab, some green, most be mature to dig
Susceptible to leaf hoppers, heat stress, pink rot, and early blight
Few external defects
In NJ it chips out of the field, with moderate specific gravity. It is mainly used as a table potato, must be mature to dig without skinning.

Hollow Heart Causes

- Stress during or shortly after tuber initiation
- Rapid tuber enlargement
- Soil Temperatures

  Below 55° F for 5-7 days during tuber initiation
- Soil Moisture

  Over 80-85% during tuber initiation

Variable hollow heart: 2010=28%,2009=29%,
2008=7%, 2007=0%, 2006=21%, 2005=35%

Hollow Heart Causes

Genetics
Seedpiece Spacing
Plant Uniformity
Soil Fertility
Rate of growth
Tuber Size

Nitrogen Rate 2002

Reba

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2
50+ 0	336c	326c	1.065	98	63
50+ 50	381b	362b	1.071	97	60
50+100	471a	435a	1.068	95	56
50+150	421ab	397a	1.070	97	63

N Rate 2010 Reba

Planting 4/7,Topdress(Urea)5/10, harvest 8/24

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2	% Culls
50+ 25	309	285	1.063	94	39	2
50+ 50	338	312	1.063	95	49	3
50+ 75	338	318	1.064	96	55	2
50+100	348	329	1.064	96	52	2
50+125	333	306	1.065	94	50	3
50+150	325	299	1.064	95	46	4

Reba NY 87 NJ '95

	Total Yield cwt/a	Specific Gravity	% Over 2 1/2"
9"	364 a	1.061 a	61 b
12"	353 a	1.061 a	71 a

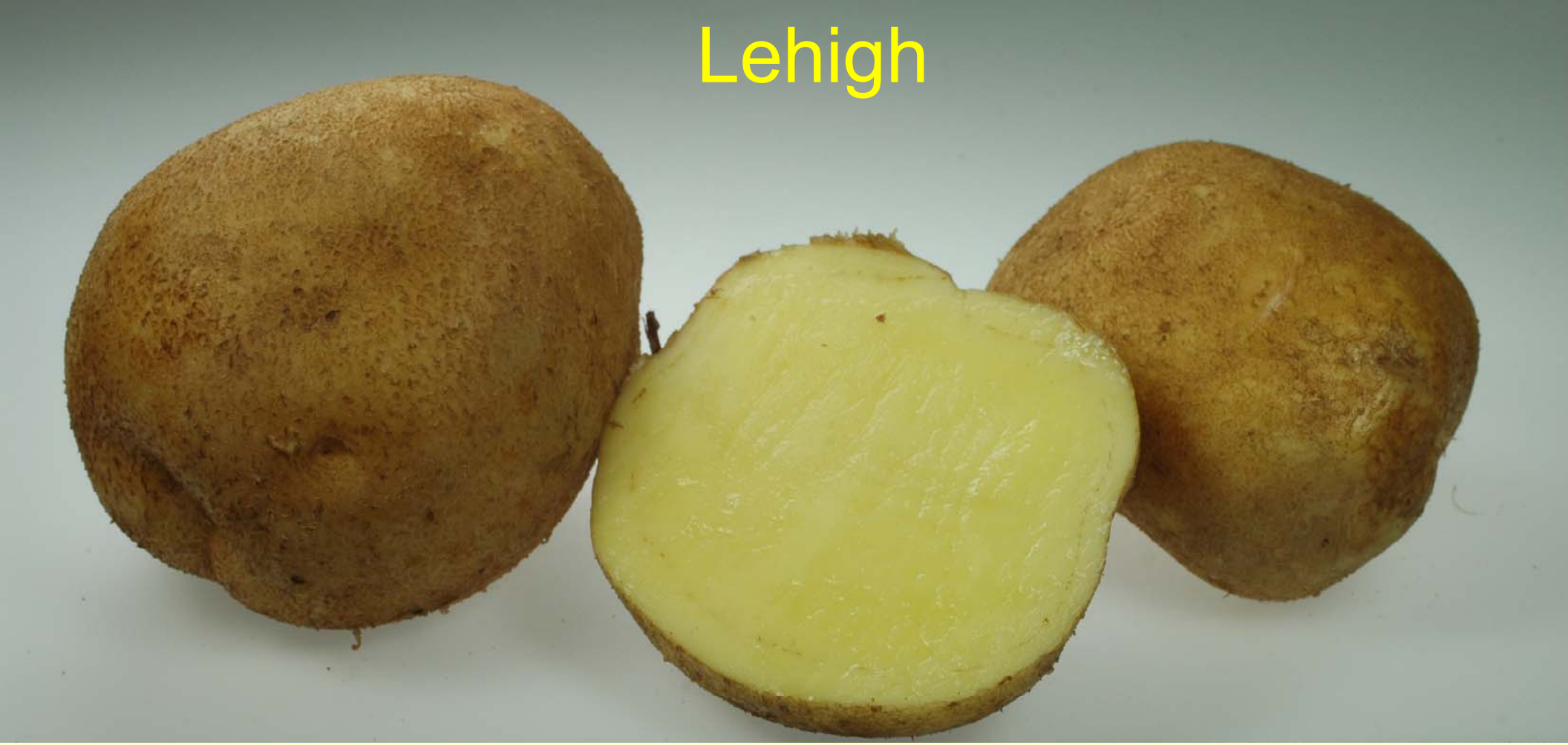

Katahdin

Katahdin

Round white smooth mod. flat tubers with good appearance
Late season table potato with good yields and cooking quality
In 75 trials Over 26 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
404	363	346	412	1.063	1.068	1.082	93	61	5

Internal heat necrosis and hollow heart are not a problem in most years
Susceptible to common scab, rhizoctonia, some green,
most be mature to dig
Few external defects
It is an excellent storage potato.
It is used only as a table potato with good boiling and baking qualities
and makes exceptional mashed potatoes.



In 22 Tests over 12 years

Marketable yield 411 vs 386 for Superior

Specific Gravity 1.075 vs 1.070 for Superior

Lehigh

Large round, slightly netted, moderate flat, variable shape,
ok tuber appearance, slight yellow flesh,
Late season table potato with good yields and cooking quality

In 22 trials Over 12 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
453	411	386	422	1.075	1.070	1.083	96	74	6

Internal heat necrosis is less than Katahdin
Hollow heart is more than Katahdin In a cool year like 2009 with 18%
Resistance to common scab, most be mature to dig
Low blackspot bruise
Appears to be susceptible to pink rot
It chips well out of the field in NJ and makes excellent home french fries

N Rate 2010 Lehigh

Planting 4/7,Topdress(Urea)5/10, harvest 8/24

N #/A AP+TD	Total cwt/A	Market cwt/A	Specific Gravity	% Over 1 7/8	% Over 2 1/2	% Culls
50+ 25	307	277	1.066	96	60 b	8
50+ 50	345	318	1.067	97	70ab	5
50+ 75	327	295	1.067	96	67ab	7
50+100	345	305	1.067	97	73a	10
50+125	341	299	1.065	97	71a	10
50+150	389	332	1.065	97	75a	12

Envol

Oblong, smooth white potato with ok appearance
Very early maturing potato with good yields early
In 6 trials Over 3 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
402	348	362	494	1.070	1.069	1.086	97	69	10

Heat necrosis and hollow heart are not a problem
Little Tolerance to Common Scab
Tuber Defects: knobs, green, and misshapen tubers
In NJ, it chipped immediately after harvest and
if dug early may out yield Superior

NY140

Large round, moderately smooth tubers with good appearance
Mid-late season table potato that chips with good early yield

In 12 trials Over 5 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
466	424	354	404	1.075	1.068	1.083	96	71	6

Internal heat necrosis and hollow heart are not a problem.
No common scab resistance
A external defects are mainly scab and a few knobs
In NJ, it chips very well out of the field, with good gravity and yield
It has good eating quality
Good resistance to blackspot bruise
It has moderate resistance to late and early blight.

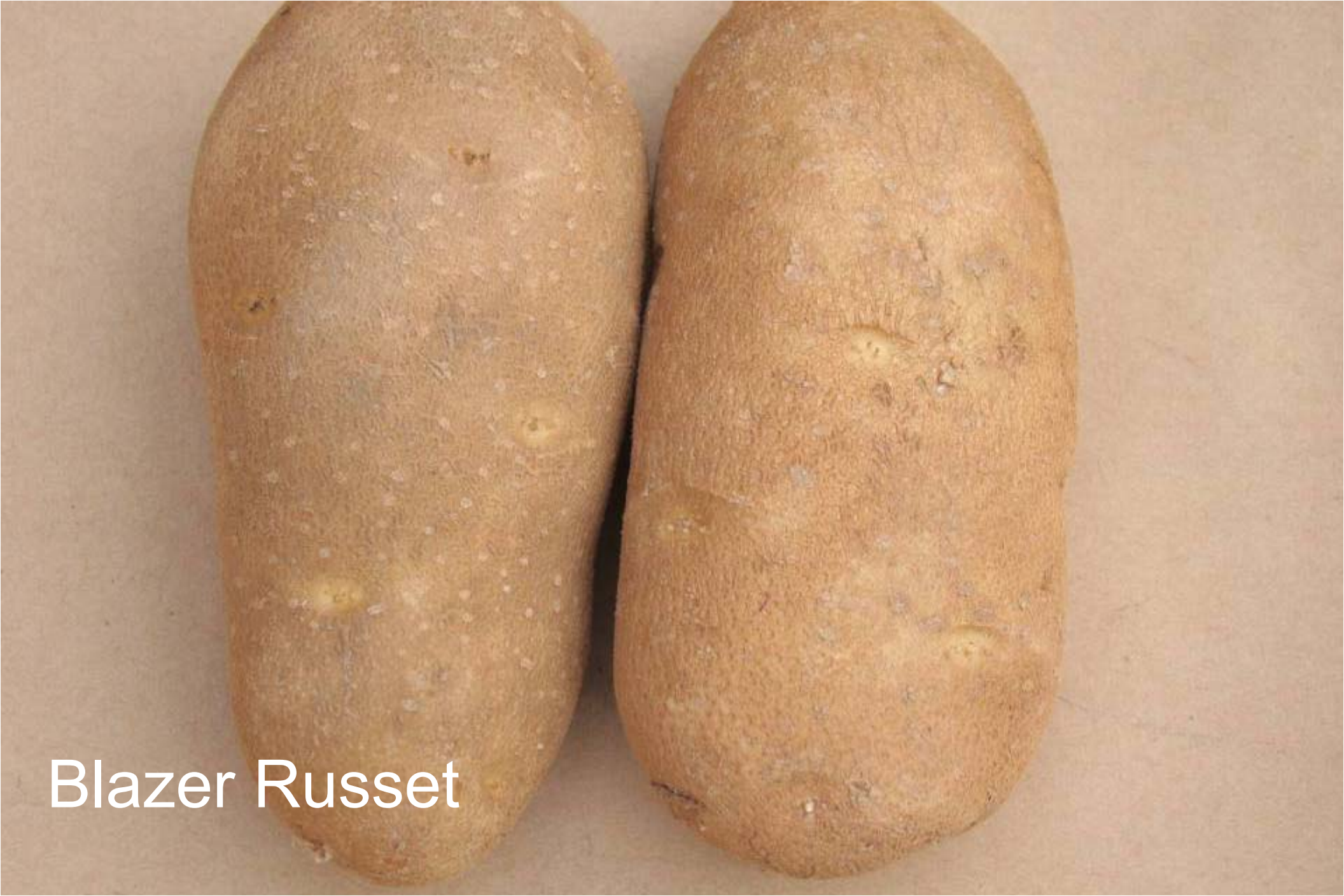
Russet Potatoes

Russet Norkotah

In 51 Tests Over 24 years

		Superior
Marketable yield	268	316
Specific Gravity	1.067	1.070

Attractive oblong to long russet tubers
Early-mid Season vine maturity
Common Scab Resistance
Very little Heat Necrosis and Hollow Heart
Extremely Susceptible to Pink Rot


Blazer Russet

Blazer Russet

Long Russet Fairly attractive tubers

11 trials over 4 years

Total cwt/a	Market cwt/a	Spec. Grav.	% Over 4 oz.	% Over 8 oz.	Culls
478	325	1.065	84	46	20

Medium maturity

Resistance to Common and Powdery Scab

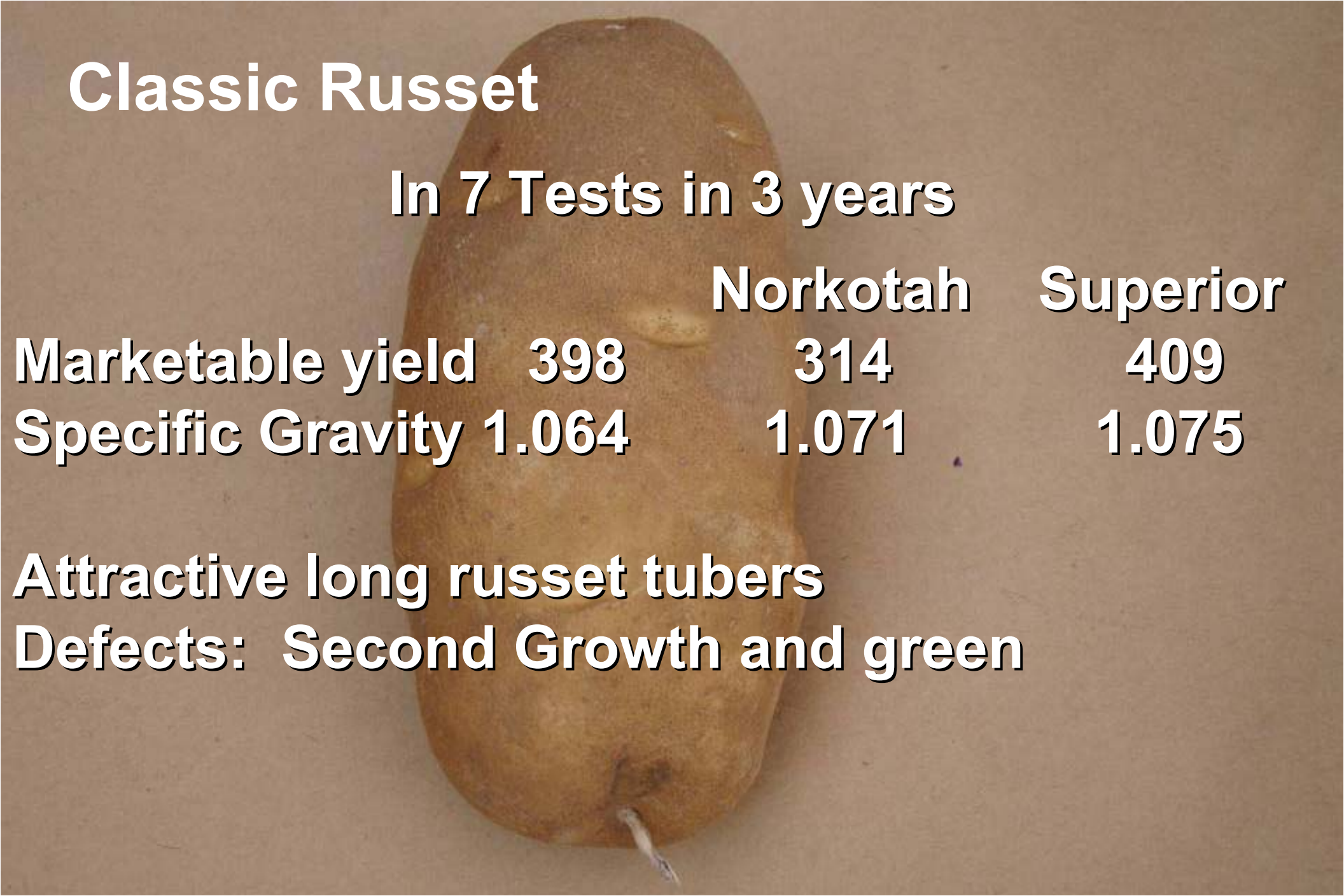
Hollow Heart - 0 in 07, 14% in 08 , and 21% in 09

TOO MUCH?

External Defects: many knobs

Good Baking and Boiling Quality

Classic Russet



Classic Russet

In 7 Tests in 3 years

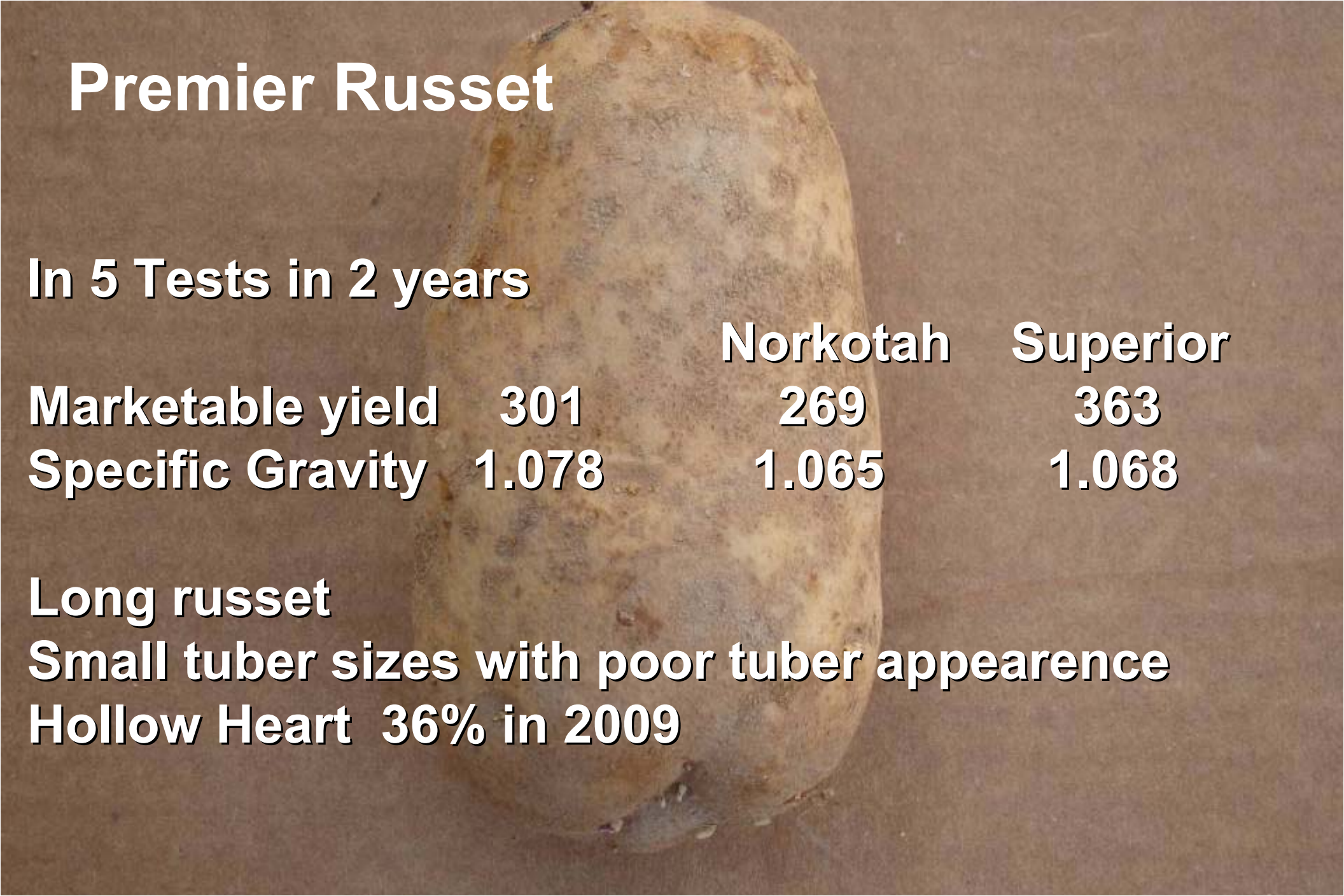
		Norkotah	Superior
Marketable yield	398	314	409
Specific Gravity	1.064	1.071	1.075

Attractive long russet tubers

Defects: Second Growth and green


Premier Russet

Premier Russet



In 5 Tests in 2 years

		Norkotah	Superior
Marketable yield	301	269	363
Specific Gravity	1.078	1.065	1.068

Long russet
Small tuber sizes with poor tuber appearence
Hollow Heart 36% in 2009

Specialty Potatoes

In 53 Tests over 23 years

Marketable yield 296 vs 333 for Superior

Specific Gravity 1.074 vs 1.069 for Superior

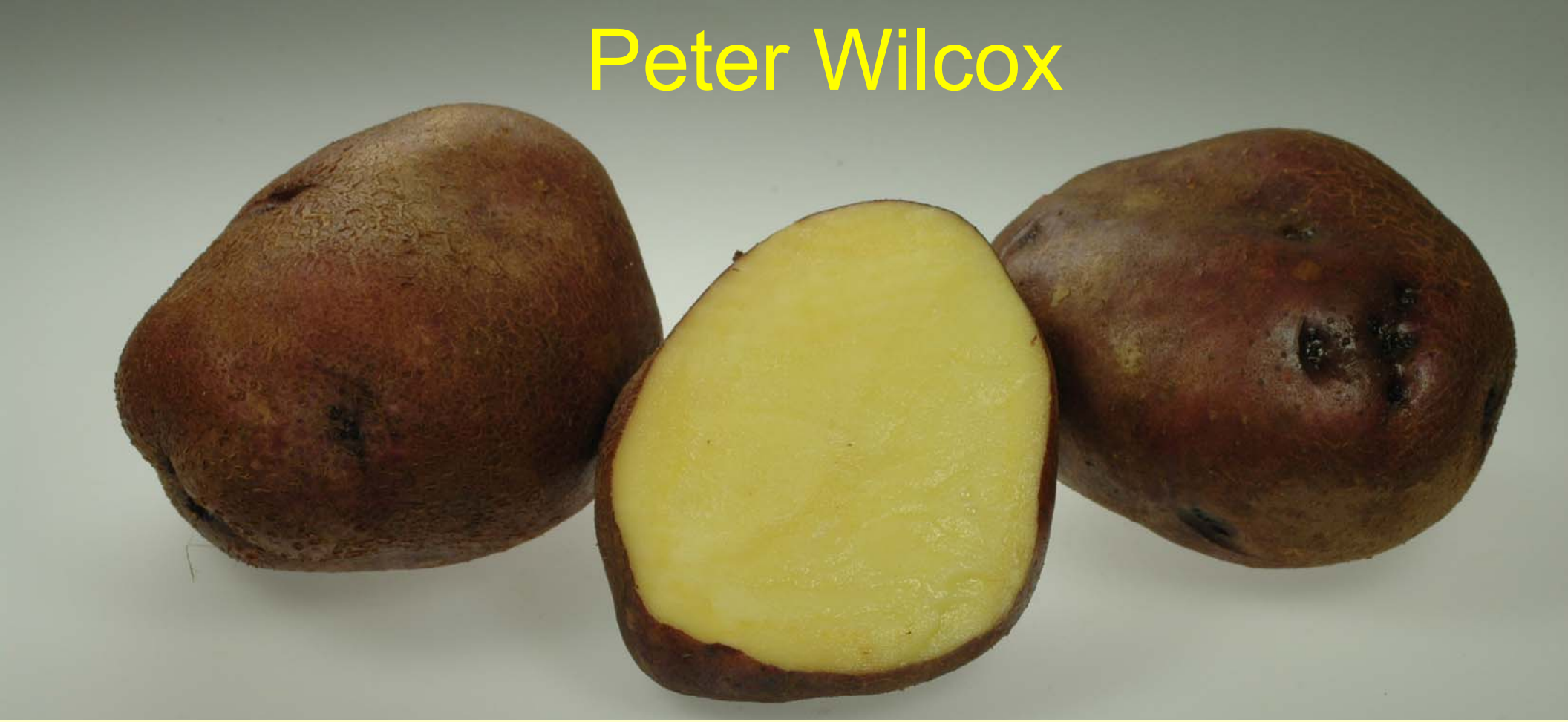
Yukon Gold

Round, smooth, attractive tubers with nice yellow flesh
It is the standard of the specialty potato variety
Medium maturing and excellent boiling and baking quality
In 53 trials Over 23 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
328	296	333	399	1.074	1.069	1.083	94	59	5

Heat necrosis has not been a big problem, with a few slight tubers
Hollow heart is a problem with ranges of 5 to 50%.
No tolerance to common scab
Tuber defects: growth cracks and scab. Silver surf can make it very unattractive.
It has a pink eye which makes it identifiable to the happy consumer

Peter Wilcox



In 25 Tests over 12 years

Marketable yield 320 vs 376 for Superior

Specific Gravity 1.067 vs 1.071 for Superior

Peter Wilcox

Round to oblong, netted purple tubers with nice appearance and nice yellow flesh

Early-Medium maturing potato with ok yield and good boiling and baking quality

In 25 trials Over 12 years

Total	Marketable Cwt/a			Specific Gravity			%Over	%Over	%
Cwt/a		Sup.	Atl.		Sup.	Atl.	1 7/8"	2 1/2"	Culls
376	320	376	438	1.067	1.071	1.085	87	31	5

Heat necrosis and hollow heart are not a problem

No tolerance to common scab

Tuber defects: knobs and scab. Silver surf can make it very unattractive

The purple skin is very attractive when dug early.


Peter Wilcox


Yukon Gold
Peter Wilcox


Questions or Comments