POTATO VARIETIES for TABLE, CHIP and ORGANIC PRODUCTION

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The Cornell potato breeding program, under the leadership of Dr. Walter De Jong and formerly that of Dr.Robert Plaisted, has released several new varieties and numbered clones that show very good promise for tablestock and/or chipping markets for the Northeast. Performance information presented here was collected from trials grown by University, Extension and grower cooperators in New York as well as from the Northeast Regional Project NE-1014 and the national United States Potato Board\Snack Food Association potato chip variety trials.

Adirondack Blue - An early to mid-season specialty tablestock variety. Tubers are oblong in shape with a dark purple-blue skin and purple flesh. It has excellent boiling scores and retains its color and remains firm when boiled. Susceptible to common scab.
Specific Gravity 1.073, ACD = 4.82, SLG = 4.30

Adirondack Red - A specialty tablestock variety. Tubers are long with a reddish-purple skin and red flesh. Susceptible to silver scurf and scab response similar to Atlantic.
Specific Gravity 1.067, ACD = 4.90, SLG = 4.21

Andover - Early vine maturity similar to Superior. It has very rapid emergence and early tuber set, so is suitable for early to midseason tablestock and chipstock utilization. Andover was developed from a cross between Allegany and Atlantic and has relatively high specific gravity for an early variety (about .008 specific gravity units below Atlantic). Tubers are slightly oblong in shape with a buff colored, flaky textured skin. Average tuber size and set per plant are similar to Atlantic. Dormancy is about two weeks longer than Atlantic. Tubers are large and are relatively free of internal defects. Under stress leaves display necrotic areas similar to early blight, but these symptoms are probably caused by physiological factors such as air pollution or heat/drought stress. Adequate soil moisture is key to manage this problem and irrigation should be applied well before plants reach the wilting point. Andover has resistance to scab and the golden nematode. Yields in early harvested trials in NY over twelve seasons (17 trials) were 105% of Superior, while full season trials (40 trials) produced marketable yields of 89% of Atlantic. Andover chips very well from the field or from short or long term storage (45F). It is especially sought after by chip processors for chipping out of early storage.
Specific Gravity 1.083, ACD = 4.21, SLG = 3.47

Eva - A midseason tablestock entry with very attractive tubers and a very bright white, smooth skin with shallow eyes. Tubers are uniform with a round to oval shape. Average tuber size and set per plant are similar to Atlantic. There are very few external defects but on occasion a few incidences of hollow heart and soft rot have been observed. Marketable yield averaged 106% of Atlantic in 58 upstate NewYork trials grown during the past 21 years. Scab resistance is similar to Monona. It is resistant to the golden nematode, PVX and PVY. Tuber dormancy is very long, almost seven weeks longer than Atlantic or Katahdin. Specific gravity is intermediate,

averaging about .014 units below Atlantic. While chip quality from 45F storage is similar to Monona, it can be variable, plus the lower gravity level, indicate some concern for use in processing. Eva produces a very attractive, bright white tuber on muck and sandy soils. Specific Gravity 1.076, ACD = 3.10, SLG = 2.90

Genesee - A late season tablestock variety with very attractive tubers with a bright white skin, shallow eyes and a smooth, round to oblong shape. Very few external and internal defects. Parents were Katahdin and M348-45. Good yield potential, averaging 93% of Atlantic in 44 trials over 23 seasons. Low specific gravity, similar to Monona, and averaging 0.020 units below Atlantic. Resistance to Verticillium, early blight, scab and the golden nematode. Good baking and excellent boiling scores, but will not chip.
Specific Gravity 1.070, ACD = 4.01, SLG = 4.03

Keuka Gold - This is a medium-late maturity tablestock clone with pale yellow skin and flesh. Tubers are large, very round, uniform in shape and have a flaky skin texture. Very high yield potential, averaging 133% of Atlantic's marketable yield in 56 upstate trials over 21 seasons. External and internal defects are less than Atlantic, but internal heat necrosis has been seen on Long Island and in southern states. Resistant to scab and the golden nematode. Specific gravity is intermediate, close to that of Katahdin. Very good cooking and boiling scores but does not chip. The scurfy skin, internal necrosis and occasionally prominent lenticels may impact marketability from southern production areas but is a good fit for cooler northern areas.
Specific Gravity 1.076, ACD = 4.13, SLG = 3.63

King Harry - Bright white small to medium sized tubers for tablestock market. Because it possesses trichome-mediated resistance (hairy leaf surface) this variety has performed well in organic yield trials. In Dr. Ward Tingey's insect resistance trials where no insecticides have been applies, it has exhibited an average yield reduction of 20% compared to a 47% reduction for Atlantic in the same 7 trials. Maturity is early, similar to Superior. Few external or internal tuber defects. It does not chip. Very susceptible to common scab, similar to Chippewa. Tuber dormancy is one week less than Atlantic. Resistant to race Ro1 of the golden nematode.
Specific Gravity 1.079, ACD = 4.49, SLG = 4.70

Lehigh - A mid-season tablestock variety. Has an attractive yellow flesh. Large tuber size with somewhat irregular shapes, a scally skin texture, but still attractive. Few external or internal defects. In 31 trials over 13 seasons it has averaged 106% of Atlantic's marketable yield. Specific gravity about 0.010 units below Atlantic. Chips better than a typical yellow-fleshed variety but not as well as the best white clones. Has good boiling scores, does not have after cooking darkening nor sloughing problems. Excellent resistance to common scab, similar to Pike. Tuber dormancy is about two weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode. Specific Gravity 1.080, ACD = 4.47, SLG = 4.14

Marcy - A late maturity chipstock clone with excellent yield potential, averaging 122% of Atlantic's marketable yield in 60 upstate trials over 17 years. Tubers are round, large and attractive but have a very scurfy skin texture. Usually has very few external or internal defects, however hollow heart and vascular discoloration are occasionally present. Although Marcy sets an above average tuber number per plant, it produces large tubers (averages over 6 oz.), so

spacing narrower than 9 inches may be useful. Tuber dormancy is about the same as Snowden. Susceptible to blackspot bruising. May be moderately susceptible to the herbicides metribuzin and rimulsulfuron. Large vines with white flowers. Marcy has resistance to the golden nematode and scab. Specific gravity is .008 units below Atlantic. Chip color scores close to Snowden from 40F storage. Specific Gravity 1.083, ACD = 3.08, SLG = 2.88

Pike - A full season chipping variety slightly earlier than Snowden. It sets a relatively high number of round tubers (set equals Snowden, hence use similar wider plant spacing) with a buff skin color and flaky texture. Pike produces light-colored chips from long-term storage (45F). Tuber dormancy is two weeks longer than Katahdin and Atlantic. Pike was developed from a cross between Allegany and Atlantic and has very high specific gravity equal to Atlantic and Snowden. Plants are partially spreading, with white flowers. Tuber size is medium to small, with a susceptibility to heat necrosis when exposed to high temperatures. Pike is resistant to the golden nematode and is very scab resistant. Marketable yield averaged 97% of Atlantic and 87% of Snowden in 39 upstate trials grown over 14 seasons.
Specific Gravity 1.091, ACD = 3.36, SLG = 3.06

Reba - Maturity is mid-season similar to Atlantic or Monona. Tubers are very attractive, with a buff skin color which is very bright and smooth in texture, while shape is somewhat irregular and ranges from oval to oblong. This variety chips well from 45F storage and also is acceptable for tablestock as it does not slough during boiling and has little aftercooking darkening. Reba has fewer external and internal defects than Atlantic. Tuber size is larger than Atlantic and may have some hollow heart in the largest tubers, hence spacing narrower than average may be helpful. Reba was developed from a cross between Monona and Allegany. Specific gravity has been about .013 units below Atlantic and .006 units above Monona. Scab resistance is intermediate and it is resistant to the golden nematode. Early season yields are similar to Superior and full season marketable yields averaged 105% of Atlantic in 77 trials in 24 years of trials. Reba is a good example of an excellent multipurpose variety.
Specific Gravity 1.076, ACD = 3.47, SLG = 4.48

Red Maria - A late season red-skinned tablestock entry. Large, round, very uniform tuber shapes. Eyes are shallow and the skin is slightly textured. Few external or internal defects. Very stable and high yield. Has averaged 118% of Chieftain's marketable yield in 27 trials over 11 years. Good boiling and cooking scores. Excellent resistance to common scab, similar to Pike. Resistant to race Ro1 of the golden nematode.
Specific Gravity 1.069, ACD = 4.11, SLG = 4.21

Salem - A midseason maturity tablestock variety. Tubers are round, large, uniform, very attractive, with a bright white skin. High yield potential, averaging 114% of Atlantic's marketable yield in 44 trials grown over 24 seasons. Specific gravity is low, 0.022 units below Atlantic. Very scab resistant and also golden nematode resistant. Occasional vascular discoloration. Very good baking and good boiling scores.
Specific Gravity 1.069, ACD = 4.26, SLG = 3.50

The two most recent Cornell variety releases are listed below (Waneta and Lamoka):

Waneta (NY138) - A late maturity chipper with large attractive tubers with a slightly textured skin. Few external or internal defects. Large tubers may have 5 to 10% hollow heart. Has averaged 98% of Atlantic's marketable yield in 35 trials over 9 seasons. Specific gravity averages 0.010 units below Atlantic. Moderate resistance to common scab. Chip color good directly from 44F or from 40F with reconditioning. Less susceptible to blackspot than Snowden. Tuber dormancy is six weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode. Specific Gravity 1.080, ACD = 3.79, SLG = 4.65

Lamoka (NY139) - A late maturity chipping line. Has a low percentage of external defects but has had some internal necrosis (varying from less or more than Atlantic depending upon the season). Averaged 98% of Atlantic's marketable yield in 34 trials over 9 seasons. Very good specific gravity, averaging just 0.003 units less than Atlantic. Chip color good directly from 44F or from 40F with reconditioning. Good resistance to common scab. Tuber dormancy is one week longer than Atlantic. Resistant to race Ro1 of the golden nematode.
Specific Gravity 1.087, ACD = 3.29, SLG = 3.47

Note on specific gravity and cooking performance:

Potatoes can range from a 1.060 Specific Gravity (16.0 % Dry Matter) to over 1.100 (24.4% Dry Matter). In general low dry matter potatoes will remain firm when boiled but will make a very wet, waxy (pasty) baked potato. Those with high dry matter will make a dry, fluffy baked potato but will fall apart quickly into mush when boiled. Neither response is right or wrong, but consumers usually expect a certain cooking response and quality and can use specific gravity (dry matter) to help select the desired quality. Red skinned potatoes as a class are often at the lower end of the specific gravity range, while baking russets are usually at the upper end. However, round whites can fall into any place in this broad range and hence it would help very much to know what variety you are purchasing.

We test varieties for their boiling and sloughing responses:

ACD or "after cooking darkening" measures how much the internal flesh darkens after boiling. A 1.0 score represents a completely dark, black response, while a 5.0 is a bright flesh color which has not darkened.

SLG or "Sloughing" measures how much the interior flesh retains its texture or falls apart after boiling. A 1.0 score means a tuber has fallen completely apart, while a 5.0 means the tuber remains completely intact, very firm.