EAST REGIONAL POTATO TRIALS
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Cooperators in 2003: Florida; Chad Hutchinson and J. Marion White; Maine; Gregory Porter and Paul Ocaña; North Carolina, Craig Yench and Mark Clough; New Jersey, Mel Henninger; Long Island, New York, Joe Sieczka; Upstate New York, Don Halseth; Ohio, Matt Kleinhenz and David Kelly; Pennsylvania, Barbara Christ; Quebec, Pierre Turcotte, Daniel Harvey, and Gilles Hamel; and Virginia, Rikki Sterrett.

Twenty-one trials were conducted in eight states and one Canadian Province. Seventeen named varieties and 26 numbered clones were available to the cooperators (Table 1). Seed for all clones and varieties was grown by the University of Maine at Aroostook Research Farm. Seedpieces were prepared, cut, and suberized by the staff at the University of Maine Agricultural and Forest Experiment Station in Presque Isle, Maine. Cultural practices were generally similar to those used by commercial growers near each location.

Objectives: The objectives of this regional project are (1) to develop pest-resistant, early-maturing, long-dormant varieties that will process from cold storage; (2) to evaluate new and specialty varieties developed in the Northeast; (3) to determine climatic effects on performance to develop predictive models for potato improvement; and (4) determine heritability/linkage relationships and improve the genetic base of tetraploid cultivated varieties.

Results: Total yield, marketable yield, specific gravity, tuber size, tuber defects, chip color results, boil and bake results are presented in East Region Trial Tables 2 to 7. For round whites, B1240-1, NY125, NY126, and NY127 had the highest total yields (Table 2). Aquilon, Snowden, B1240-1 and NY126 were the only clones in the 2003 regional trials that had US#1 yields equaling or exceeding those of Atlantic (Tables 3 and 6). On a site-by-site basis these respective varieties had US#1 yields averaging 116, 100, 111, and 112% those of Atlantic. AF1569-2 also provided relatively high marketable yields (average of 90% or better over locations compared to Atlantic on a site-by-site basis). Specific gravities of Aquillon, Snowden, AF1455-20, AF2207-4, and AF2215-1 were close to or in excess of Atlantic at comparable sites (Tables 4 and 6). AF1758-7 had an average specific gravity below 1.070. Atlantic, Katahdin, Kennebec, AC Sunbury, Yukon Gold, AF1455-20, AF1569-2, AF1758-7, B1240-1, B1826-1, NY126, and SC8801-2 sized well in most trials (Tables 5 and 6). Aquilon, Atlantic, Snowden, AF2215-1, AF2222-2, B1826-1, NY126 and NY128 chipped well in most 2003 tests. In addition to these lines, AF1455-20, AF1569-2, AF1938-3, AF2115-1, AF2207-4, B1240-1, B1806-8 NY120, NY125, and NY127 produced good chips out of the field. Envol, Katahdin, AF1758-7, AF2115-1, B1806-8, NY125 and NY126 scored well in boiling tests. Envol, Katahdin, Kennebec, Superior, AF1569-2, AF1758-7, and AF1938-3 scored well in baking tests (Table 6).

Most of the white clones had a high incidence of external defects during 2003 and 13 of 26 had more than 10% external defects (Table 7). Clones with low external defects incidence (less than 8%) were Atlantic, Envol, Snowden, AC Sunbury, Superior, AF2222-2, NY120, NY125, NY126, and NY128. Atlantic, Snowden, Yukon Gold, AF2207-4, AF2222-2, B1240-1, and B1806-8 had high incidence of hollow heart. Aquilon, Atlantic, Katahdin, AC Sunbury, and AF2115-1 had high incidence of internal necrosis. Snowden, AF1758-7, B1240-1, B1826-1, and NY127 also had high levels of vascular discoloration.

AC Red Island, Roselys, NDTX731-1R, and NY129 had US#1 yields that were comparable to Chieftain (Table 6). NDTX731-1R had the best overall appearance ratings of this group and had relatively low incidence of internal and external defects (Table 7). NY129 also had acceptable appearance and low defects incidence, but was not quite as pretty as NDTX731-1R. Roselys has a very unusual pale pink color. AC Red Island has a dark red, netted skin, and oblong tubers. It had high incidence of internal necrosis during 2003. Considering all attributes, NDTX731-1R was the best new red in the trials.

AF1753-16 had very high total yields, while A9014-2, A90586-11, and ATX84706-2Ru had the highest average US#1 yields (Tables 2 and 3). A9014-2, A90586-11, AF1753-16, and ATX84706-2Ru had US#1 yields equaling or exceeding those of Russet Norkotah (Tables 3 and 6). On a site-by-site basis these respective varieties had US#1 yields averaging 113, 107, 101, and 128% those of Russet Norkotah. Specific gravities of Shepody, A9014-2, A90586-11, and AF1753-16 exceeded 1.080 (Table 4). Shepody, AF1753-16, and ATX84706-2Ru had very large tuber size (Tables 5 and 6). Russet Burbank, A9014-2, and AF2133-17 had good tuber appearance (Table 6). None of the russets received outstanding boiled quality scores during 2003, while A9014-2 received good baked quality scores (Table 6).
Russet Norkotah, A9014-2, A90586-11, AF1866-8, and AF2133-17 had less than 15% external defects (Table 7). Russet Burbank, Shepody, A9014-2, AF1753-16, and AF1808-18 had more than 5% hollow heart during 2003. None of the lines had any substantial incidence of internal necrosis or vascular discoloration during 2003.

**Promising 2003 clones:** Aquilon is a nice chipping variety for areas where internal heat necrosis does not cause problems. AF1758-7 completed eastern regional testing during 2003 and is promising as a scab-resistant, fresh market clone in areas with cool growing conditions. B1240-1 has shown promise for out-of-field chipping, but it is very late maturing and has not chipped consistently from storage. It has also varied widely in external and internal defects. NY126 showed very good promise for dual-purpose chipping and fresh use during 2003. NDTX731-1R was the most promising red-skinned clone. AF1753-16 was recently released as a french fry variety. A9014-2 and A90586-11 were promising russet/long-white clones based on 2003 results. Several other red-, russet-, and white-skinned clones showed promise during 2003, but will require another year of testing before making decisions on commercialization potential.