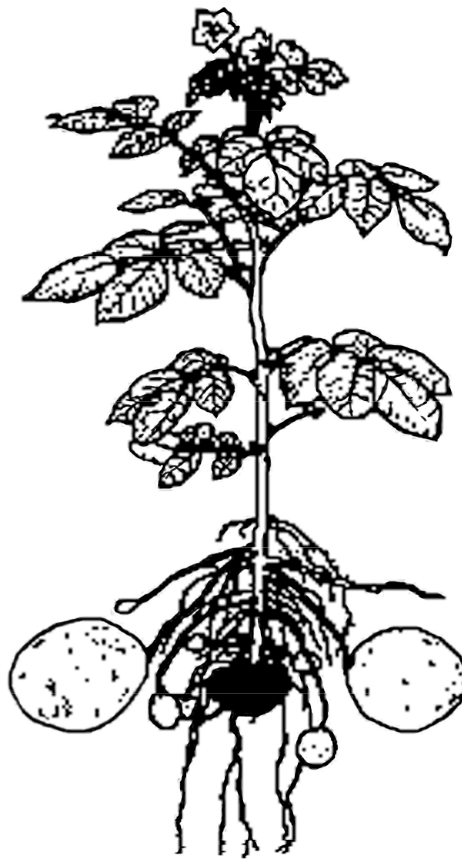


NC STATE UNIVERSITY

NORTH CAROLINA POTATO VARIETY TRIAL AND BREEDING REPORT

2005



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I. OBJECTIVES:

Our research is conducted in collaboration with the USDA Cooperative States Research Extension and Education Service (CSREES) NE1014 Multi-state Potato Variety Development and Evaluation Project. The overall objective of the NE1014 Project is to develop high yielding, disease and insect resistant, table- and chip-stock potato varieties for potato growers in the eastern US. The objective of the NC State University variety development and breeding program is to evaluate germplasm, and select and develop adapted potato varieties that are suitable for use by North Carolina growers and the southeastern US potato industry in general.

II. PROJECT SUMMARY

Our program focuses on two areas: the development of new potato germplasm and varieties through collaborative early-generation breeding and selection projects with the USDA-ARS, Cornell University and the University of Maine; and the evaluation of preliminary and advanced breeding clones for adaptation to NC from a wide range of potato breeding programs in the US and Canada.

Our in-house efforts to develop varieties in North Carolina begin with crossing in the greenhouses at the NC Department of Agriculture and Consumer Services Tidewater Research Station/NC State University Vernon G. James Research and Extension Center (TRS/VGJREC) in Plymouth, NC, and subsequent planting, selection and advance to single-hill, 6-hill, 20-hill and 60-hill plots depending on relative performance at each of these stages over a period of four years. Clones that survive the first four cycles of selection are then entered into preliminary and advanced yield trials conducted at the TRS/VGJREC and on-farm. This year, 10,140 single-hills were planted and 344 clones were selected averaging a 3.4% selection rate (however, 144 of these were selected for breeding parent purposes, leaving 200 with variety potential lowering the variety development selection rate to just under 2%). Out of the 140 clones in our 6-hill plots, 29 were selected for future evaluation, with 21 of these coming from our breeding program and 8 from the University of Maine (UM). In the 20-hill plots, 32 clones were planted with 12 being selected for further evaluation. In our 60-hill plots, 14 clones were planted and 6 were selected; 2 out of our program and 4 from Cornell University (CU).

In our 12 yield trials, we evaluated a total of 185 preliminary and advanced clones. These evaluations were conducted either on-farm, and/or at the TRS/VGJREC. Advanced clones are typically evaluated at more than one site in NC. The results of the yield trials are summarized later in this report, and in Tables 1-12. Each table has two parts, the first (a) being devoted to yield information, specific gravity measurements, and chip color scores, and the second (b) providing potato plant and tuber quality characteristics. This report can also be viewed and downloaded at our website <http://www.ces.ncsu.edu/plymouth/hort/potato/index.html>.

2005 Promising Lines:

Chip-stock clones

AF2115-1. Developed by the UM and introduced to the program through the NE1014 regional potato development project, we have evaluated this mid-maturing clone in 3 trials since 2003. Yields averaged 84% Atlantic. It's chip score averaged a 2 and its gravity has averaged 2 points below Atlantic. Incidence of internal defects have been low with no more than 10% IHN at a rating of an 8.3 in 2003. Appearance scores have been good and its size is medium.

B0766-3. Developed by the USDA-ARS, we have evaluated this mid-maturing clone in 33 trials since 1995. This year we planted it in 4 trials. Yields were acceptable, though in most cases slightly less than Atlantic. This year it chipped very well (average score of 1.5). Historically it has chipped very good (2), though its gravity is slightly lower than Atlantic. Size tends to be medium to medium large and appearance is fair. This clone shows very low incidence of IHN, over 10 years an average of 2% at a rating of 8.6 (on a scale of 1-9, with 9 representing no IHN). This year its most severe rating was 13% incidence of IHN averaging a rating of 7.3.

Harley Blackwell. Developed by the USDA-ARS and released in 2003, we have evaluated this mid-maturing clone since 1995 in 36 trials. In the past, yields have exceeded Atlantic by 5% or more. This year the average yield was 96% of Atlantic (historically, over 10 yrs, yields have averaged 104% of Atlantic). Harley Blackwell chipped well (2) and has chipped acceptable in past years (2.5 average). Overall, appearance for this year was good. Historically, it has received a better than good rating. This variety stands out because its yield is equal to Atlantic, its very attractive, resistant to IHN, and typically has low incidence of other internal defects.

Table-stock and specialty-type clones

Adirondack Blue. Developed by CU and released in 2003. This is the first year we have evaluated this early to mid-season specialty-type variety. It has a dark blue skin and flesh, it's skin is moderately smooth which is better than the slight net All Blue produces in NC. When cut open the flesh color is consistent from the cortex to the center of the potato whereas All Blue will sometimes have a white or whitish cortical ring. Shapes also tend to be more uniformly oblong and smooth. Internal defects were minimal and appearance was better than fair.

Adirondack Red. Developed by CU and released in 2004. This early to mid-season specialty-type variety has been evaluated in 4 trials since 2001. It has a dark red skin and a red flesh, it is moderately smooth and has low incidence of internal defects. Yields have averaged 65% of Chieftain, and its appearance has been better than fair.

Amey. Developed by the USDA-ARS and released in 2001, Amey has been evaluated in 14 trials since 1995. This is a mid-maturing specialty-type, "baby russet" clone. Typically, the majority of potatoes produced are in the 2 and 3 size class. We believe that this potato may fit well with the public's increasing level of carbohydrate intake concerns as it represents a russet-type potato that is not excessively large, but highly attractive and very flavorful. Yields typically are not high, but this is partly a factor of the size profile. This clone has expressed a low level of IHN, historically 4% incidence averaging a rating of 7.5.

B1806-8. Developed by the USA-ARS, this slightly later than mid-season clone has been evaluated in 10 trials since 2000. It has buff or yellow skin and yellow flesh. Size, historically has been medium though this year it was medium large. Marketable yields have averaged 106% Atlantic and its skin has a slight net and a good appearance. It has been free of IHN and overall has no significant internal defects.

B1816-5. Developed by the USDA-ARS, this specialty-type clone has been evaluated in 14 trials since 2000. It is an attractive early to mid-maturing, purple-skin, yellow-flesh potato. It tends to produce a medium to small-medium sized potato with marketable yields near Chieftain (89% historically). This year, it was evaluated in 4 trials and had an average

marketable yield of 72% of Chieftain. This clone expressed IHN in 2 of the 4 trials this year for the first time in the six years we have evaluated it (13% at a rating of 8.0 and 3% at an 8.8). It has very few other internal defects. B1816-5 was also evaluated by several growers on a small scale this year and results were favorable. This clone has been placed on the fast track for variety release and will be evaluated again by several growers in NC during 2006 dependent on seed availability.

B1952-2. Developed by the USDA-ARS, it has been evaluated in 9 trials since 2001. This is an early to mid maturing, specialty-type potato with a purple skin and white flesh. Its skin texture is smooth and bright giving it a very attractive appearance. It is medium sized and has historical marketable yields 77% of Chieftain. In 2005, it was evaluated in 4 trials and marketable yields were 75% of Chieftain. This clone has expressed low levels of IHN in past years historically averaging 1% at a rating of 8.9.

MSI005-20Y. Developed by Michigan State University (MSU), this mid-maturing clone has been evaluated in 3 trials since 2003. It has a yellow flesh and moderately smooth buff skin. Marketable yields have averaged 86% Atlantic. No IHN has been observed or other significant internal defects.

NY126. Developed by CU, this slightly later than mid-season clone has been evaluated in 13 trials since 1999. It has a slightly netted buff skin and yellow flesh. Appearance has been a step better than fair and marketable yields have averaged 98% Atlantic. Internal defects have been minimal. It's most severe incidence of IHN was 3% at a rating of 8.5 in 2003.

Vivaldi. Developed by De ZPC (now HZPC) and released in 1999, Vivaldi has been evaluated in 8 trials since 2001. This is a mid to late maturing, buff-skin, yellow-flesh potato. Vivaldi produces a highly attractive, medium-sized, oblong potato that is very flavorful. It yields 91% of Atlantic compared with Yukon Gold at 76% of Atlantic. This year we noted 15% IHN at a rating of 8.3 in one trial (its most severe rating for us to date), no other significant internal defects have been noted. As a table-stock potato, Vivaldi is one of the more attractive clones that the program has evaluated over the years, and we are recommending that growers take a look at it in a limited fashion.

III. RESEARCH STATION AND ON-FARM COOPERATOR LOCATIONS:

Tidewater Research Station (NCDA&CS)/Vernon G. James Research and Extension Center,
(NCSU), Plymouth, NC (Washington Co.)
Black Gold Farms, Gumneck, NC (Tyrrell Co.)
James Brothers Farms, Weeksville, NC (Pasquotank Co.)
McCotter Farms, Bayboro, NC (Pamlico Co.)

COOPERATING COUNTY EXTENSION AGENTS:

Tom Campbell, Elizabeth City, Pasquotank Co.
Carla Pugh, Columbia, Tyrrell Co.
Bill Ellers & Pete Anderson, Bayboro, Pamlico Co.

IV. PROCEDURES:

SITE, SOIL TYPE, PLANTING AND HARVEST DATES FOR YIELD TRIALS

Site	Soil Type	Planting Date	Harvest Date	Days to Harvest
Black Gold	Weeksville black silt loam	Mar 10	Jul 7	119
James Brother's	Weeksville silt loam	Mar 4	Jun 27	115(105 vine kill)
McCotter's	Yonges loamy fine sand	Mar 11	Jun 23	104
TRS/VGJREC	Portsmouth fine sandy loam	Mar 15, 22	Jul 5, 7-13	112, 113, 114 115, 118

EXPERIMENTAL DESIGN: All yield trials were planted in a randomized complete block design with 4 replications except the preliminary evaluation trial, which had only one replication per clone. Nineteen clones in two trials were evaluated at Black Gold Farms, sixteen clones were evaluated at McCotter's, and twenty-four clones were evaluated at James Brother's on-farm trial. Plots consisted of one row with 28 hills spaced 9 inches apart. Spacing between rows was 34 inches at Black Gold Farms, 38 inches at McCotter's, 40 inches at James Brother's, and 38 inches for all trials at the TRS. Weed and pest control practices for on-farm trials were in accordance with those practiced by the cooperators (Appendix 1).

The on-farm trials were dug using a single-row digger and hand harvested. The TRS/VGJREC trials were harvested using a two-row harvester modified to dig one row at a time. All grower trials were graded using a portable Lockwood Grader which sorts to two grades: A+B's $\geq 1\frac{7}{8}$ "; and C's $< 1\frac{7}{8}$ ". The TRS/VGJREC trials were graded to five classes: 1's $< 1\frac{7}{8}$ "; 2's $> 1\frac{7}{8}$ to $2\frac{1}{2}$ "; 3's $> 2\frac{1}{2}$ to $3\frac{1}{4}$ "; 4's $> 3\frac{1}{4}$ to 4"; 5's > 4 ". Culls were removed and weighed separately in all trials. Each clone was evaluated for tuber quality and appearance during grading using standardized NE-1014 rating codes. A description of the rating codes is provided in Appendix 2.

After grading and weighing, 40 marketable tubers (10 tubers/replication) were randomly sampled from each entry. The tubers were cut and scored for the presence of hollow heart, heat necrosis and any other internal defects. A second sub-sample of marketable tubers from each replication was taken and bulked by entry for specific gravity readings and chipping tests. Specific gravity was determined using the weight-in-air/weight-in-water method. Chip evaluations were conducted at the TRS/VGJREC for all trials. Chipping at the TRS/VGJREC was done at least once within 48 hrs of harvest.

V. RESULTS:

Environmental Summary (Appendix 3)

Our season started on time, though rains occurring during the middle and later parts of March caused our plantings to be spread out. Temperatures throughout the majority of the season were favorable for growth. Rains this year seemed to come in large doses at a time or none at all, still overall quantities were adequate during the growing season for the trials.

Last year a heavy European Corn Borer (ECB) infestation caused problems with the canopy coverage in our trials. This year the ECB flight was not as significant and was effectively controlled. We did, however, have a problem with high amounts of ozone damage in all our trials causing vines to decline prematurely.

A. Yield Trials

1. On-Farm Trials

Black Gold Variety Trial (Tables 1a and 1b)

Atlantic, our standard, had a marketable yield of 398 cwt/A and no other clones had greater marketable yields. Atlantic had a gravity of 1.075. Two clones: Ivory Crisp (1.076) and Snowden (1.079) had higher gravities. Four clones (B0766-3, Dakota Pearl, Harley Blackwell, and Snowden) had a chip score rating of 2, all others rated lower. Ivory Crisp had an unacceptable chip color score of 4. Three clones, Atlantic, Harley Blackwell, and Ivory Crisp had appearance scores of 7 (good). Atlantic was the only clone to express significant levels of internal heat necrosis (IHN), 25% with an average severity score of 8.3. Only three clones expressed hollow heart at an incidence of 10% or greater: B0766-3 (33%), Dakota Pearl (18%) and Ivory Crisp (10%). Incidence of brown center of 10% or greater was noted in Atlantic (10%), B0766-3 (10%) and Dakota Pearl (18%). Soft rot was observed in all clones in this trial both internally and during grading with the exception of Harley Blackwell and Snowden, where it was only recorded at grading. Other external defects observed in the trial were sunscald, infected lenticels, growth cracks and misshapes.

Snack Food Association Trial at Black Gold Farms(Tables 2a and 2b)

This is the first year The Program has hosted this trial and it had ten entrees. Atlantic had a marketable yield of 349 cwt/A. Only two clones in this trial, ND5822C-7 (380 cwt/A) and NY132 (373 cwt/A), had greater yields than Atlantic though neither was significantly greater. Atlantic had a gravity of 1.079 and four clones: AF2211-9 (1.080), NC5822C-7 (1.085), NY132 (1.080), and Snowden (1.079) had equal or greater gravities. Snowden was the only clone assigned a chip score of 1. Three others (A91814-5, AF2211-9, and W2133-1) were assigned a chip score of 2, while all other clones in the trial rated a 3 (acceptable). NY132 was the only clone to receive an appearance rating of a 7. Atlantic and Snowden were both rated a 6 for overall appearance. All but three clones expressed IHN (NY132, W1201 (Megachip), and W2133-1). The greatest incidence of IHN was seen in Atlantic (25% with an average severity score of 7.0) and MSJ316-A (53% with an average severity score of 6.8). Four clones had greater than 10% hollow heart: A91814-5 (15%), Atlantic (18%), MSJ316-A (18%), and ND5822C-7. Clones with greater than 10% incidence brown center were: AF2211-9 (13%), Atlantic (15%), MSJ316-A (15%), and ND5822C-7 (33%). Soft rot was the major defect observed in this trial. All clones were noted to have some incidence during grading and all but two (MSJ461-1 and W2133-1) had soft rot noted during our internal evaluations. Other external defects observed were: sunscald, misshapes, growth cracks, infected lenticels and scab.

James Brother's Variety Trial (Tables 3a and 3b)

Because of the diversity of materials in this trial three yield standards were chosen: Atlantic (round white standard), Chieftain (red standard), and Yukon Gold (yellow flesh standard). In this trial, no clone had a marketable yield significantly greater than the standards, Atlantic (302 cwt/A) and Chieftain (331 cwt/A), though La Rouge had the greatest marketable yield at 342 cwt/A. Yukon Gold produced a marketable yield of 176 cwt/A. Five of the other eight yellow flesh clones had significantly greater yields than Yukon Gold: B1816-5 (217 cwt/A), Keuka Gold (260 cwt/A), NY126 (282 cwt/A), Red Gold (268 cwt/A), and Vivaldi (290 cwt/A). The specific gravity for Atlantic in this trial was low at 1.074 and only B1952-2 (1.074) had an equal gravity, all others were lower. Two clones chipped with a score of 1: B0766-3 and Dakota Pearl. In terms of overall appearance, one clone received an 8, NY130. Clones with an overall appearance score of 7 were: Atlantic, B1145-2, B2135-163, Dakota Pearl, and NY129. The only clone with an IHN incidence of 10% or greater was Oscar (10%

with an average severity score of 8.3). Incidence of vascular ring at 10% or greater was noted in six clones: Chieftain (25%), Dakota Pearl (33%), Harley Blackwell (13%), NorDonna (10%), NY130 (30%), and Superior (33%). Culls were primarily due to sunscald, growth cracks, misshapes, and secondary growth.

McCotter Farms Variety Trial (Tables 4a and 4b)

Similar to the James Brother's trial but smaller, this trial contains a wide breadth of materials so three standards were included Atlantic (310 cwt/A), Chieftain (316 cwt/A), and Yukon Gold (247 cwt/A). One clone, MSI005-20Y (358 cwt/A), had a significantly higher yield than all the standards. All other clones had lower marketable yields than Atlantic and Yukon Gold. In addition to MSI005-20Y, two other clones, NY125 (319 cwt/A) and Vivaldi (380 cwt/A), had significantly greater marketable yields than Yukon Gold. Atlantic had a specific gravity of 1.085 which is exceptionally high for NC. While no other clone had a higher gravity than Atlantic three clones had gravities of 1.079 or higher: Amey (1.080), B0766-3 (1.081) and B1952-2 (1.079). Two clones B0766-3 and Superior had chip scores of 1, while Atlantic and B2135-163 had chip scores of 2. Incidence of IHN was greater than 10% in two clones, Atlantic (13% with an average severity score of 8.3) and Vivaldi (15% with an average severity score of 8.3). Along with IHN, the primary defects in this trial were growth cracks, sunscald, and misshapes.

2. TRS/VGJREC Yield Trials

Specialty Crops Variety Trial (Tables 5a and 5b)

This trial, containing 16 entrees, is specifically designed to focus on reds, purples, and other potatoes that we believe may fill various niche markets in our state. All marketable yields in this trial were compared to the standards Chieftain (233 cwt/A) and Yukon Gold (151 cwt/A). None of the clones in the trial significantly exceeded Chieftain's yield, but NY129 did have a greater yield (236 cwt/A). Two yellow flesh clones, Oscar (220 cwt/A), and Vivaldi (195 cwt/A), had significantly greater yields than Yukon Gold. Vivaldi was the only clone with an overall appearance score of 8. Three clones, Adirondack Red, Amey, and Yukon Gold had an overall appearance score of 7. Seven clones having IHN incidence levels equal to or greater than 10% were Amey (10% with an average severity score of 8.5), Chieftain (83% with an average severity score of 7.0), NY129 (15% with an average severity score of 8.0), Oscar (85% with an average severity score of 6.3), Red Gold (13% with an average severity score of 8.0), Vivaldi (10% with an average severity score of 8.0), and Yukon Gold (25% with an average severity score of 7.8). The most common external defects were growth cracks, sunscald, secondary growth, misshapes, skin blemishes attributed to Rhizoctonia.

Round White Trial One (Tables 6a and 6b)

Of the twenty-two clones in this trial, none had marketable yields significantly greater than Atlantic, which yielded 221 cwt/A. However, two clones: ND7377Cb-1 (256 cwt/A) and Snowden (256 cwt/A) had higher yields. Four clones had gravities greater than or equal to Atlantic (1.077) these were: B1826-5 (1.077), B2319-3 (1.087), ND7377Cb-1 (1.077) and Snowden (1.078). Five clones (B2274-2, MSK061-4, ND7196C-18, ND7377-Cb-1 and Snowden) had a chip score of 1 and three (AF2172-8, MSI152-A and Superior) had unacceptable chip scores of 4. Seven clones (AF2909-3, B1829-5, B2135-163, B2281-2, B2319-3, Harley Blackwell, and Yukon Gold) received an overall appearance rating score of 7. Clones with 10% or more incidence of IHN were: Atlantic (45% with an average severity score of 7.3), B2135-163 (40% with an average severity score of 7.8), and Snowden (23% with an

average severity score of 7.9). Common defects were misshapes, soft rot, sunscald, and growth cracks.

Round White Trial Two (Tables 7a and 7b)

Of the twenty-four clones in this trial, four (B2253-4 (342 cwt/A), Marcy (321cwt/A), Milva (315 cwt/A), and NYY36-4 (338 cwt/A)) had marketable yields significantly greater than Atlantic, which yielded 255 cwt/A. Atlantic had a specific gravity of 1.076, six clones had equal or greater gravities: B1992-106 (1.078), B1992-166 (1.079), MSH095-4 (1.079), NYY28-9 (1.079), Snowden (1.081), and Yukon Gold (1.076). Four clones, B1992-106, B1992-166, NYY18-16, and NYY36-4, had a chipping score of 1. Six clones (Atlantic, B0766-3, Dakota Pearl, Dakota Crisp, NY125, and NYY36-4) received overall appearance rating scores of 7. Two clones, Marcy and NYY18-16, received overall appearance scores of 8. IHN incidence in this trial was significant with fourteen clones having 10% or more incidence of IHN. These clones were (in order of percent incidence and average severity score): Atlantic (70% at 6.8), MSJ461-1 (53% at 5.8), Satina (53% at 7.0), Marcy (48% at 6.8), Dakota Pearl (48% at 7.3), B1992-166 (33% at 8.0), NYY36-4 (33% at 8.0), AF2321-1 (23% at 7.5), Milva (25% at 7.8), Kennebec (18% at 8.0), Snowden (15% at 8.3), Yukon Gold (15% at 8.3) B0766-3 (13% at 7.3), and Dakota Crisp (10% at 8.8). Common defects were misshapes, soft rot, sunscald, growth cracks, and skin blemishes attributed to Rhizoctonia.

NE-1014 White Trial. (Tables 8a and 8b)

B1806-8 (274 cwt/A), had the highest yield in this trial. But, none of the nineteen clones in this trial, had marketable yields significantly greater than Atlantic (257 cwt/A). Ten clones in this trial had gravities greater than Atlantic (1.075) these were (sorted high to low): AF2207-4 (1.087), AF2115-1 (1.084), Kennebec (1.084), AF2211-9 (1.078), NY126 (1.078), AC Sunbury (1.076), Snowden (1.076), Yukon Gold (1.076), AF2206-8 (1.075), and NY128 (1.075). One clone, NY127, received a chip rating of 1 (exceptionally bright). Six clones (AF2115-1, AF2211-9, Atlantic, B1806-8 and Yukon Gold) were rated a 7 for overall appearance. Clones with 10% or greater incidence of IHN were: AF2211-9 (10% at 7.5), AF2290-8 (90% at 6.5), and Atlantic (53% at 6.5). Clones with incidence of brown center 10% or greater were: AF2290-8 and Superior. The most common culls were misshapes, sunscald, secondary growth, and skin blemishes attributed to Rhizoctonia.

NE-1014 Red Trial. (Tables 9a and 9b)

The standard, Chieftain, had a marketable yield of 237 cwt/A. Of the fifteen clones in this trial none of them had significantly higher marketable yields than Chieftain. La Rouge (228 cwt/A), ND7132-1R (209 cwt/A), NY129 (210 cwt/A), and NY136 (224 cwt/A) had the highest marketable yields. Only two clones, AF2393-7 and NY136, received an overall appearance score of 7. Clones with 10% or greater IHN were: B1816-5 (13% at 8.0), Chieftain (40% at 7.3), NY129 (30% at 7.8), and Oscar (80% at 5.3). Culls were due mostly to soft rot, misshapes, secondary growth, sunscald, infected lenticels, and skin blemishes attributed to Rhizoctonia.

Unreplicated Trial. (Tables 10a and 10b)

Fifty clones were evaluated in this trial along with the standards Atlantic, Snowden and Superior. Each 28-hill plot was non-replicated. Clones with promising attributes such as high yield, high specific gravity, exceptional appearance and/or high disease resistance will be evaluated in following years in replicated trials.

B. Breeding and Early Generation Selection Efforts

1. NCSU/USDA-ARS Early Generation Project. (11a and 11b and 12a and 12b)

This project, conducted in cooperation with Dr. Kathleen Haynes, USDA-ARS and funded in part by the USDA-CSREES, is an on-going experiment focused on: 1) developing improved potato breeding and selection methods for the eastern US; and 2) developing improved varieties more suitable to the range of climates and photoperiods found in the Mid-Atlantic and Southeastern U.S. In 2005, 21 clones remaining from two potato populations composed of multiple parents, and subjected to three years of selection in ME and NC during a four year period, were evaluated in replicated trials in Virginia, North Carolina, and New Jersey. The data for the two NC trials are summarized in Tables 11 and 12. The data from NC, NJ and VA will be summarized and presented elsewhere at the conclusion of the study. This year none of the clones produced higher marketable yields than Atlantic (187 cwt/A and 194 cwt/A in the respective trials). In the Early Generation Trial One (Table 11a) no clones had a higher gravity than Atlantic (1.082). Five clones had gravities of greater than 1.076: B2192-21 (1.079), B2193-20 (1.077), B2216-103 (1.077), B2221-195 (1.078) and Snowden (1.080). In the Early Generation Trial Two (Table 12a) Atlantic had a gravity of 1.076 and three clones had equal or higher gravities: B2280-86 (1.076), B2290-9 (1.082), and Snowden (1.077). One clone, B2282-107 had an overall appearance score of 8 and nine clones had an overall appearance score of 7: Atlantic (in both trials), B2193-20, B2221-195, B2272-22, B2273-75, B2280-134, B2280-86, B2290-9, and B2293-156. Clones with a chip score of 1 were: B2282-107 and Snowden. Incidence of soft rot was high in both trials, other defects included misshapes, secondary growth, sunscald, and skin blemishes due to Rhizoctonia.

2. NCSU Potato Variety Development Efforts

Our efforts to develop varieties in North Carolina begin with selection in a single hill plot in year one, then advance to 6-hill plots and 20-hill plots in years two and three. Following this, materials are placed in a sixty-hill plot in year four for a final cycle of selection before entering into yield trials. Our single hill materials come from the USDA-ARS and our own crosses made at the TRS. Minitubers are generated in the TRS greenhouses. This year, 10,140 single hills were planted and 344 clones were selected or 3.4% selection rate (144 of these were selected for breeding purposes leaving 200 with variety potential lowering the selection rate to just under 2%). Out of the 140 clones in our 6-hill plots 29 were selected for future evaluation (21 of the selections were from our own materials saved from last year and 8 were from the UM). In the 20-hill plots, 32 clones were planted and 12 were selected for further evaluation. Our sixty-hill plots had 14 clones and 6 were carried through for evaluation next year (2 of these selections are from our program and 4 were from CU).

V. ACKNOWLEDGMENTS

This work could not be conducted without the assistance of the growers, county extension agents and NCDA&CS TRS staff. We are grateful for their continued support and assistance. Seed for the trials was provided by: Dr. Walter De Jong Cornell University; Dr. Dave Douches, Michigan State University; Dr. Susie Thompson, North Dakota State University; Dr. Zenaida Ganga, University of Maine; and Dr. Kathleen Haynes, USDA/ARS, Beltsville, MD. Also a special thanks goes to Mr. Todd Bradley and the staff at Maine Farmers Exchange, Presque Isle, ME for their efforts to procure small amounts of seed for shipment to NC. And another very special thank you to Childstock Farms, Malone, NY and Tucker Farms , Gabriels, NY, for taking the time to send small amounts of seed. This project is funded in part by The North Carolina Potato Growers Association, the Snack Food Association, the USDA-CSREES and the USDA-ARS. Their continuing support is very much appreciated.

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Table 1a. Black Gold Farms Variety Trial. Total and marketable yield, percentage of total yield by size class, specific gravity, and chip scores of potato clones harvested 119 DAP¹ at Black Gold Farms, Gum Neck, Tyrrell Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ² (% of total yield)			Specific Gravity ³	Chip Color ⁴
				A's + B's	C's	Culls		
AF2171-4	345	259	64	74	8	18	1.072	3
Atlantic	469	398	100	85	8	7	1.075	3
B0766-3	387	309	77	79	8	13	1.071	2
Dakota Pearl	391	309	79	79	10	11	1.069	2
Gem Chip	420	349	89	83	8	8	1.068	3
Harley Blackwell	445	372	93	83	11	5	1.072	2
Ivory Crisp	381	294	74	76	14	10	1.076	4
Snowden	410	333	84	81	17	3	1.079	2
Superior	374	312	80	83	9	8	1.074	4
Grand Mean	396	314						
CV (%)	13	19						
LSD (K=100)	65.2	92.9						

¹ DAP= Day After Planting; DVK= Days of Vine Kill

² Size classes: A's + B's > 1 7/8" ; C's ≤ 1 7/8" ; Culls - all defective potatoes.

³ Determined by weight in air / water method.

⁴ Chip Color Ratings conducted by NCSU Potato Breeding Program at TRS/VGJREC:

1= no defects, exceptionally bright; 2= excellent, bright; 3= good, light or golden; 4= dark defects, marginal; 5= not acceptable

Table 1b. Black Gold Farms Variety Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 119 DAP¹ at Black Gold Farms, Gum Neck, Tyrrell Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AF 2171-4	5	6	8	5	6	6	6	7	3	7	5	5	6	3	8.8	0	0	3	8	RZ,IL,FS,^SR,MS,SS
Atlantic	6	9	8	5	6	5	7	7	3	5	7	7	7	25	8.3	5	0	10	5	SR,MS,SS
B0766-3	6	9	9	5	6	7	5	7	3	5	6	5	5	0	9	33	0	10	13	^SR,FS,SS,IL,GC
Dakota Pearl	6	9	9	4	8	8	7	7	3	7	5	6	6	3	8.8	18	10	18	10	^SS,SR,IL,GC
Gem Chip	6	9	9	5	6	8	6	7	5	7	7	7	5	0	9	3	0	3	10	^SS,SR
Harley Blackwell	9	9	8	5	6	5	7	7	2	7	6	7	7	0	9	5	0	0	0	SS,SR,SC
Ivory Crisp	6	9	8	5	6	8	7	7	2	7	5	7	7	0	9	10	0	0	8	FS,SR,SS,IL
Snowden	9	9	8	6	6	5	7	7	2	5	5	7	6	0	9	3	0	0	0	SR,GC,SS
Superior	5	9	8	4	6	7	5	7	3	4	6	.	5	0	9	3	0	3	10	SR,MS,SS

¹ DAP= Day After Planting; DVK= Days of Vine Kill

² See NE 1014 Standard Potato Rating System for to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in A and B size classes. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for comments codes

Table 2a. Snack Food Association Trial. Total and marketable yield, percentage of total yield by size class, specific gravity and chip scores of potato clones of potato clones harvested 119 DAP¹ at Black Gold Farms, Gum Neck, Tyrrell Co., NC - 2005

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³	Chip Color ⁴
				1's	2's	3's	4's	5's	Culls				
A91814-5	421	264	76	19	47	16	0	0	17	63	16	1.075	2
AF2211-9	398	298	85	11	40	34	1	0	15	75	35	1.080	2
Atlantic	416	349	100	9	41	43	0	0	7	84	43	1.079	3
MSJ316-A	416	293	85	18	57	13	0	0	12	71	14	1.067	3
MSJ461-1	386	259	74	25	50	17	0	0	8	67	17	1.067	3
ND5822C-7	486	380	109	14	45	33	0	0	8	78	33	1.085	3
NY132	452	373	107	9	49	33	1	0	8	82	34	1.080	3
Snowden	397	283	81	22	54	17	0	0	7	71	17	1.079	1
W1201(Megachip)	380	286	82	12	44	31	0	0	13	76	31	1.078	3
W2133-1	408	320	91	14	45	32	1	0	7	78	33	1.077	2
Grand Mean	416	310											
CV(%)	8	11											
LSD(K=100)	53.5	49.9											

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU potato breeding program at the TRS/VGJREC: 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 2b. Snack Food Association Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 119 DAP¹ at Black Gold Farms, Gum Neck, Tyrrell Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
A91814-5	5	8	8	4	9	7	4	5	5	7	5	5	3	5	8.3	15	0	3	10	^SR,SS,^MS,SG
AF2211-9	9	9	8	5	7	6	7	6	2	7	6	5	5	3	8.5	8	0	13	8	SR,SS,MS,GC
Atlantic	6	9	8	4	6	5	7	7	2	6	7	7	6	25	7.0	18	0	15	5	SR,RZ,SS,GC
MSJ316-A	5	9	8	6	6	7	5	4	5	8	5	.	4	53	6.8	18	0	15	13	SR,GC,CS,FS,IL,SS
MSJ461-1	6	8	8	6	6	6	5	5	3	7	5	.	5	5	8.5	0	0	0	0	^RZ,CS,SR,SS
ND5822C-7	9	9	9	7	9	8	6	5	2	7	6	.	5	3	8.8	15	0	33	8	MS,SR,SS,FS,RZ,EL,GC,IL
NY132	6	9	8	5	6	7	6	7	5	8	7	.	7	0	9	3	0	3	8	MS,SR,GC,SS,RZ
Snowden	9	9	8	5	5	5	7	6	2	6	5	.	6	3	8.8	0	0	0	5	^SR,SS,FS,MS
W1201(Megachip)	9	9	8	4	6	6	7	6	3	6	6	.	5	0	9	3	0	0	28	^SR,RZ,FS,IL,SS
W2133-1	6	9	8	4	5	6	4	5	2	7	6	.	5	0	9	0	0	3	0	SR,SS,MS,IL

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 3a. James Brother's Farm Variety Trial. Total and marketable yield, percentage of total yield by size class, specific gravity and chip scores of potato clones harvested 115 DAP¹ (105 DVK¹) at James Brother's Farm, Weeksville, Pasquotank Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield				Size Distribution by Class ² (% of total yield)			Specific Gravity ³	Chip Color ⁴
		cwt/A	% Atl.	% Chf.	% Yuk.	A's + B's	C's	Culls		
Atlantic	344	302	100	91	175	88	10	2	1.074	2
B0766-3	324	286	98	87	164	88	9	3	1.065	1
B1145-2	217	172	70	52	98	79	20	1	1.061	.
B1816-5	270	217	79	66	126	80	16	3	1.067	.
B1952-2	229	197	72	60	116	86	6	8	1.074	.
B2135-163	280	256	88	77	149	91	8	1	1.062	2
Cherry Red	297	260	92	79	148	87	11	2	1.062	.
Chieftain	365	331	106	100	192	91	9	1	1.054	.
Dakota Pearl	289	255	91	77	146	88	9	3	1.063	1
Harley Blackwell	341	289	97	88	167	85	9	6	1.066	2
Keuka Gold	284	260	87	79	152	92	7	1	1.060	.
La Rouge	369	342	112	104	198	93	7	1	1.052	.
Milva	327	189	70	57	111	58	18	24	1.054	.
NorDonna	292	237	83	72	138	81	17	2	1.053	.
NY126	310	282	94	86	163	91	5	4	1.064	.
NY129	325	280	93	85	163	86	13	1	1.056	.
NY130	290	229	82	69	132	79	20	1	1.061	.
NY133	321	297	98	90	173	93	5	3	1.066	.
Oscar	280	124	57	38	72	44	12	44	1.061	.
Red Gold	315	268	95	81	153	85	12	3	1.067	.
Satina	336	156	63	47	89	46	10	44	1.043	.
Superior	272	247	88	75	142	91	5	4	1.067	3
Vivaldi	361	290	101	88	165	80	17	3	1.050	.
Yukon Gold	197	176	71	53	100	89	8	2	1.064	.
Grand Mean	301	247								
CV(%)	9	11								
LSD(K=100)	34.8	35.9								

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: A's + B's > 1 7/8"; C's ≤ 1 7/8"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 3b. James Brother's Farm Variety Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 115 DAP¹ (105 DVK¹) at James Brother's Farm, Weeksville, Pasquotank Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
Atlantic	7	8	8	5	6	6	7	7	2	6	7	8	7	0	9	0	3	5	0	DAE,GC,SS,MS
B0766-3	7	8	8	7	8	5	6	6	2	5	7	8	5	0	9	0	0	3	0	DAE,MS,GC,EL,SS,SS
B1145-2	5	7	9	2	2	8	6	7	2	7	3	8	7	0	9	0	0	0	0	EL,SG,GC
B1816-5	6	7	9	4	1	7	7	7	3	7	3	7	6	0	9	0	5	0	0	SiSc,PTS,MS,GC, YF2
B1952-2	5	9	8	4	1	8	7	7	3	6	7	8	5	0	9	0	3	0	0	EL,PTS,MS,GC
B2135-163	5	9	9	5	6	7	7	6	2	7	7	8	7	0	9	0	0	0	0	GC,SS
Cherry Red	7	9	9	5	2	7	6	7	3	6	6	8	6	0	9	0	8	0	3	EL,SR,MS,PTS,SS
Chieftain	9	9	9	6	3	8	5	4	3	4	7	8	5	3	8.8	0	25	0	0	DAE,SG
Dakota Pearl	6	9	9	5	8	8	7	7	2	6	6	8	7	0	9	0	33	5	0	SS,MS,GC,RZ,SR
Harley Blackwell	7	9	9	4	6	7	7	2	2	7	5	5	6	0	9	0	13	0	0	SC,SS,MS,~DAE
Keuka Gold	5	9	9	7	7	7	5	6	3	7	7	6	5	0	9	0	3	0	0	EL,IL,MS
La Rouge	6	8	9	5	3	8	6	6	3	2	7	8	3	0	9	3	3	13	0	^DAE,GC,SG,MS
Milva	8	9	9	7	7	7	5	6	5	7	7	8	3	0	9	0	0	0	0	^SG,MS,PTS,YF2
NorDonna	7	9	8	5	2	8	7	6	2	6	4	8	6	0	9	0	10	0	0	SG
NY126	6	9	8	5	7	7	5	7	3	5	7	8	6	0	9	0	3	0	0	MS,PTS,YF1
NY129	7	9	9	5	2	6	7	7	2	7	5	8	7	0	9	0	0	0	0	SS,MS,PTS
NY130	6	8	9	5	8	8	7	7	2	7	4	8	8	0	9	0	30	0	0	SS,ID,GC
NY133	5	8	9	6	8	8	7	7	2	7	6	8	6	0	9	0	0	0	0	EL,DSE,MS,SR,SS
Oscar	7	9	9	9	3	7	4	7	5	7	6	8	3	10	8.3	0	0	0	0	STST,SG,MS,YF1
Red Gold	6	8	9	4	3	7	5	7	3	5	6	8	5	0	9	0	8	0	0	MS,SS,GC,YF1, Orange Skin
Satina	9	9	8	8	7	8	6	7	3	7	6	8	3	0	9	0	0	0	0	SG,MS,YF2
Superior	5	9	8	5	6	7	5	7	3	5	5	8	5	0	9	0	33	5	0	~DAE,~DSE,MS,CS,SS,GC
Vivaldi	8	9	9	6	7	7	6	7	5	8	6	8	6	0	9	0	3	0	0	SG,MS,SS,EL,YF1
Yukon Gold	8	9	9	4	7	8	6	6	2	6	6	8	6	0	9	0	0	3	0	GC,RZ,MS,ID,YF2

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in A and B size classes. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 4a. McCotter's Farm Variety Trial. Total and marketable yield, percentage of total yield by size class, specific gravity and chip scores of potato clones harvested 104 DAP¹ at McCotter's Farm, Bayboro, Pamlico Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield				Size Distribution by Class ² (% of total yield)			Specific Gravity ³	Chip Color ⁴
		cwt/A	% Atl.	%Chf.	%Yuk.	A's + B's	C's	Culls		
Amey	214	159	51	50	64	74	24	2	1.080	.
Atlantic	341	310	100	98	126	91	5	4	1.085	2
B0766-3	274	236	77	75	98	86	11	3	1.081	1
B1816-5	277	228	74	72	93	82	14	4	1.074	.
B1952-2	242	201	66	64	84	83	9	8	1.079	.
B2135-163	326	283	92	90	117	87	11	2	1.072	2
Chieftain	379	316	103	100	130	83	16	1	1.066	.
Dark Red Norland	258	229	74	72	93	88	10	2	1.062	.
MSI005-20Y	419	358	116	113	147	85	13	2	1.071	.
NY125	319	269	88	85	111	84	15	0	1.078	.
NY129	317	262	86	84	110	82	16	1	1.065	.
NY136	325	257	83	81	106	79	18	3	1.065	.
Red Gold	308	249	82	80	104	81	15	4	1.071	.
Superior	277	249	81	79	102	90	7	3	1.074	1
Vivaldi	380	309	100	99	128	81	18	1	1.064	.
Yukon Gold	288	247	79	78	100	86	9	5	1.076	.
Grand Mean	309	260								
CV(%)	8	10								
LSD(K=100)	33.6	34.8								

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: A's + B's > 1 7/8"; C's ≤ 1 7/8"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 4b. McCotter's Farm Variety Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 104 DAP¹ at McCotter's Farm, Bayboro, Pamlico Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
Amey	7	8	8	5	6	2	5	5	5	8	3	8	5	0	9	0	0	0	0	SG,SG,MS
Atlantic	7	7	8	5	6	5	7	5	7	5	7	7	6	13	8.3	0	0	0	0	SR,MS,GC,RZ
B0766-3	6	8	8	6	9	6	7	5	3	6	6	7	5	0	9	0	0	0	0	EL,MS,DAE,SR
B1816-5	5	8	8	5	1	7	5	7	4	8	3	7	8	0	9	0	0	0	0	MS,PTS,SiSc,ID,YF2
B1952-2	7	8	8	5	1	8	5	7	4	6	5	8	6	0	9	0	0	0	0	SiSc,MS,PTS,SG,GC,ID
B2135-163	5	8	8	5	7	8	7	6	3	7	7	6	7	8	8.5	0	0	0	0	GC,MS,SR
Chieftain	9	8	8	6	3	8	7	3	4	5	7	8	6	0	9	0	0	0	0	GC,MS,SG
Dark Red Norland	5	7	4	2	2	8	7	7	3	8	3	8	7	0	9	0	0	0	0	GC,ID,SS
MSI005-20Y	7	8	8	6	7	8	5	6	4	7	6	8	7	0	9	0	0	0	0	MS,PTS,CS,ID,GC,YF1
NY125	8	9	8	6	7	8	5	7	5	8	4	9	8	0	9	0	0	0	0	MS,YF1
NY129	7	7	7	7	2	6	7	7	3	8	5	7	6	0	9	0	0	0	0	SR,MS,ID,EL
NY136	6	8	8	5	2	8	5	6	3	7	5	8	7	0	9	0	0	0	0	MS,EL
Red Gold	6	8	6	4	3	7	5	7	3	6	7	8	5	0	9	0	0	0	0	MS,SS,SR,YF1
Superior	6	8	8	5	6	7	6	7	3	5	5	8	5	0	9	0	0	0	0	DAE,DSE,MS,FS,SR
Vivaldi	8	8	6	4	7	9	5	7	5	8	7	8	6	15	8.3	0	0	0	0	MS,PTS,SG,ID,YF2
Yukon Gold	9	9	6	4	7	8	6	6	5	7	7	7	5	3	8.8	0	0	0	0	MS,SR,ID,SS,EL,YF2

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in A and B size classes. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 5a. Specialty Crops Trial. Total and marketable yield, percentage of total yield by size class, and specific gravity of potato clones harvested 112 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

CLONE	Total Yield cwt/A	Marketable Yield			Size Dist. by Class (%) ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³
		cwt/A	% Chf.	%Yuk.	1's	2's	3's	4's	5's	Cull's			
Adirondack Blue	191	150	64	107	13	70	9	0	0	7	79	9	1.067
Adirondack Red	202	117	50	82	39	57	1	0	0	3	57	1	1.064
All Blue	210	99	43	69	23	47	0	0	0	30	47	0	1.070
All Red	241	195	84	139	11	57	25	0	0	8	81	25	1.064
Amey	190	165	71	118	9	78	9	0	0	4	87	9	1.070
B1145-2	187	142	62	99	21	63	13	0	0	3	76	13	1.062
B1816-5	203	174	76	121	12	59	26	0	0	3	85	26	1.073
B1952-2	186	167	72	119	7	57	33	0	0	3	90	33	1.070
B2152-17	177	130	56	90	26	56	17	0	0	1	73	17	1.067
Chieftain	255	233	100	167	6	46	45	1	0	3	91	46	1.060
Dark Red Norland	212	180	78	126	8	49	35	1	0	7	85	35	1.062
NY129	261	236	102	172	8	51	39	1	0	2	90	39	1.058
Oscar	264	220	94	153	14	64	19	0	0	2	83	19	1.077
Red Gold	225	174	75	121	18	56	22	0	0	4	78	22	1.072
Vivaldi	238	195	84	142	15	68	13	0	0	4	81	13	1.059
Yukon Gold	172	150	66	100	10	52	35	0	0	3	87	35	1.078
Grand Mean	213	170											
CV(%)	14	15											
LSD(K=100)	45.1	35.0											

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: A's + B's > 1 7/8"; C's ≤ 1 7/8"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

Table 5b. Specialty Crops Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 112 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
Adirondack Blue	5	8	8	4	1	7	5	8	4	6	6	7	6	0	9	3	0	0	0	RZ,MS,SR
Adirondack Red	6	9	8	5	2	7	5	8	5	8	5	7	7	8	8.5	0	0	0	3	RZ,SiSc,MS,SR,CS
All Blue	9	9	7	7	1	6	7	7	6	4	5	3	4	0	9	0	0	0	3	SG,^CS,MS,RZ,SR,IL,SiSc
All Red	6	9	8	5	2	7	6	7	3	6	6	8	5	0	9	0	0	5	0	MS,CS,RZ,SR
Amey	6	9	8	6	5	3	5	6	5	8	5	8	7	10	8.5	0	0	0	0	MS,SG
B1145-2	5	8	4	3	2	7	7	7	1	8	4	8	5	0	9	0	0	0	0	IL,SS,MS,FS,SG
B1816-5	5	9	8	5	1	7	6	5	5	7	5	8	6	3	8.8	0	0	0	0	SS,SiSc,MS,CS,SG
B1952-2	5	8	8	4	1	7	5	4	3	7	6	7	5	0	9	5	3	0	3	GC,RZ,MS,IL,SR
B2152-17	6	9	8	5	2	7	7	6	2	8	5	8	6	0	9	0	8	0	3	SR,FS,MS,YF1
Chieftain	7	9	8	6	3	7	5	4	3	5	7	8	4	83	7.0	0	3	0	0	SR,MS,SG
Dark Red Norland	5	8	6	3	3	7	6	7	4	8	7	8	5	5	8.5	0	0	0	0	MS,SG,GC,SR
NY129	6	9	8	6	2	6	6	5	2	8	7	8	6	18	8.0	0	0	0	0	FS,IL,RZ,SS,MS
Oscar	9	9	9	9	3	7	5	7	6	8	6	8	1	85	6.3	0	0	0	0	SS,MS,^^^SG,alltubers
Red Gold	6	8	8	5	3	7	7	6	2	6	6	8	6	13	8.0	0	8	3	0	SG,GC,MS,SS,SR,FS
Vivaldi	9	8	8	5	8	8	6	7	5	8	6	8	8	10	8.0	0	5	0	0	SS,MS,CS,SR
Yukon Gold	9	8	7	5	7	8	7	7	2	7	6	7	7	25	7.8	3	0	0	0	SR,CS,RZ,MS

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE184 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in A and B size classes. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 6a. Round White Trial One. Total and marketable yield, percentage of total yield by size class, specific gravity and chip scores of potato clones of potato clones harvested 114DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ²							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³	Chip Color ⁴
				(% of total yield)										
				1's	2's	3's	4's	5's	Culls					
AF2172-8	130	111	52	11	59	26	0	0	4	85	26	1.065	3	
AF2570-3	183	158	75	12	65	20	0	0	3	85	20	1.073	4	
AF2909-3	129	113	51	13	58	30	0	0	0	87	30	1.070	2	
Atlantic	246	221	100	7	40	50	1	0	3	90	50	1.077	2	
B1829-5	211	182	84	11	49	37	0	0	3	86	37	1.077	2	
B2135-163	184	173	80	4	33	61	1	0	2	94	61	1.071	2	
B2274-2	182	121	56	34	61	5	0	0	1	66	5	1.075	1	
B2280-5	135	118	56	10	59	28	0	0	3	87	28	1.070	3	
B2281-2	123	108	49	11	61	26	0	0	1	87	26	1.067	2	
B2319-3	96	17	8	77	17	0	0	0	6	17	0	1.087	.	
Harley Blackwell	230	210	97	8	50	41	1	0	1	91	42	1.074	2	
MSI152-A	214	142	64	11	38	29	0	0	22	67	29	1.065	4	
MSK061-4	178	141	64	17	56	23	0	0	4	79	23	1.075	1	
ND5255-59	190	133	64	27	59	9	0	0	5	68	9	1.067	2	
ND7196C-18	160	66	31	57	40	0	0	0	3	40	0	1.072	1	
ND7377Cb-1	276	256	122	6	33	59	0	0	2	92	59	1.077	1	
NY131	215	190	88	11	58	31	0	0	1	88	31	1.074	2	
NY134	274	217	102	17	67	12	0	0	4	79	12	1.072	2	
YYY41-67	197	174	80	6	28	59	0	0	7	88	59	1.069	2	
Snowden	282	256	119	8	51	40	0	0	1	91	40	1.078	1	
Superior	203	183	84	7	48	42	1	0	2	90	42	1.070	4	
Yukon Gold	172	150	68	8	45	42	0	0	5	87	42	1.076	.	
Grand Mean	191	156												
CV(%)	19	22												
LSD(K=100)	51.4	47.7												

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC: 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 6b. Round White Trial One. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 114 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AF 2172-8	5	8	3	3	6	6	7	7	3	7	5	7	6	0	9	0	0	0	5	SR,FS,IL,MS
AF 2570-3	7	8	6	6	6	6	7	7	2	7	6	8	6	0	9	0	5	3	3	GC,RZ,SR,MS
AF 2909-3	6	8	5	4	9	7	6	7	2	7	5	8	7	0	9	0	0	0	5	
Atlantic	6	8	7	5	6	5	6	7	3	6	7	8	6	45	7.3	0	0	8	15	DSE,FS,MS
B1829-5	6	9	7	5	8	6	5	7	4	8	6	8	7	0	9	0	0	0	13	SR,MS,SG
B2135-163	6	9	8	5	6	7	6	7	4	8	7	8	7	40	7.8	5	0	3	8	FS,CS,RZ,SR
B2274-2	6	7	4	5	8	6	3	7	2	8	3	8	3	0	9	0	0	0	20	
B2280-5	5	8	7	5	6	7	7	7	2	7	5	8	6	0	9	0	0	0	0	SR,SS
B2281-2	5	9	8	4	6	7	6	7	4	8	6	8	7	0	9	0	0	0	5	SR,SS
B2319-3	6	6	7	4	7	8	7	7	2	8	1	7	7	0	9	0	0	0	5	FS,SR, Pink Eyes,YF2
Harley Blackwell	8	8	6	5	6	5	7	7	2	8	6	7	7	0	9	0	0	0	25	MS,SS,SC
MSI152-A	9	9	7	8	9	7	5	6	4	8	6	6	3	0	9	0	0	0	8	^CS,^SG,GC
MSK061-4	6	8	7	6	9	8	6	7	3	8	6	6	6	0	9	0	0	0	8	CS,RZ,SR,SG,MS
ND5255-59	6	8	5	5	9	8	6	7	4	8	4	7	6	0	9	0	0	0	0	^FS,SR,MS
ND7196C-18	6	8	6	5	6	7	7	7	3	8	3	7	5	7.5	8.3	0	0	0	13	IL,FS,SR
ND7377Cb-1	6	9	8	7	6	6	5	7	5	8	7	8	6	2.5	8.8	3	0	0	5	SS,MS
NY131	6	9	8	6	6	5	5	7	3	6	6	8	4	0	9	0	0	0	8	DAE,DSE,MS
NY134	6	9	8	6	9	6	6	7	4	8	5	7	5	0	9	0	0	0	0	FS,RZ,SS,MS,SR
NY41-67	6	9	8	6	7	7	6	6	5	8	7	7	6	0	9	0	0	0	0	SS,CS,FS
Snowden	8	9	7	8	6	5	7	7	2	5	6	8	4	22.5	8	0	0	0	5	MS,SS
Superior	6	9	8	4	6	6	6	7	4	5	7	8	5	0	9	0	0	0	3	MS,DSE,DAE
Yukon Gold	8	8	5	5	7	8	6	7	3	7	6	7	7	7.5	8.5	0	0	3	0	GC,SR,CS,SS,MS,YF1

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 7a. Round White Trial Two. Total and marketable yield, percentage of total yield by size class, specific gravity and chip scores of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³	Chip Color ⁴
				1's	2's	3's	4's	5's	Culls				
AF 2321-3	203	185	73	7	50	41	0	0	2	91	41	1.061	3
AF 2909-5	211	195	77	3	29	62	1	0	4	92	63	1.059	3
Atlantic	276	255	100	7	38	53	2	0	1	93	55	1.076	3
B0766-3	266	248	99	6	35	57	1	0	1	93	58	1.074	2
B1806-8	313	288	115	6	47	45	0	0	1	92	45	1.070	.
B1992-106	282	254	102	8	44	46	0	0	2	90	46	1.078	1
B1992-166	285	245	98	8	29	52	5	0	6	86	57	1.079	1
B2253-4	437	342	135	10	43	35	0	0	12	78	35	1.068	3
Dakota Crisp	291	247	98	12	54	31	0	0	3	85	31	1.070	2
Dakota Pearl	220	183	72	16	54	28	0	0	1	82	28	1.065	2
Kennebec	337	280	112	6	35	47	1	0	11	83	48	1.074	3
Marcy	344	321	128	5	31	61	1	0	2	93	62	1.071	2
Milva	391	315	125	12	51	29	0	0	8	80	29	1.071	4
MSE221-1	245	229	91	4	28	65	1	0	2	94	66	1.068	2
MSH095-4	289	270	107	4	29	63	2	0	3	93	65	1.079	3
MSJ461-1	272	207	83	20	57	20	0	0	4	76	20	1.073	2
NY125	242	208	85	12	58	28	0	0	2	86	28	1.068	.
YYY18-16	267	247	98	6	33	59	1	0	1	93	59	1.069	1
YYY28-9	268	242	96	9	45	45	0	0	1	90	45	1.076	2
YYY36-4	364	338	133	5	27	64	2	0	2	93	66	1.072	1
Satina	406	152	61	8	22	15	0	0	55	37	15	1.064	.
Snowden	316	288	115	8	50	41	0	0	1	91	41	1.081	2
Superior	246	218	87	8	40	47	1	0	3	89	48	1.069	4
Yukon Gold	214	187	75	8	49	38	0	0	5	87	38	1.076	.
Grand Mean	291	248											
CV(%)	10	12											
LSD(K=100)	37.4	38.9											

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC: 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 7b. Round White Trial Two. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AF 2321-3	5	8	6	5	6	5	7	6	3	8	6	8	6	20	7.5	0	3	0	3	MS,SS
AF 2909-5	5	8	5	5	6	6	5	6	3	6	6	7	5	0	9	0	0	0	0	SR,RZ,MS,DSE
Atlantic	6	8	6	5	6	5	7	7	2	6	7	8	7	70	6.8	3	0	5	5	MS,SS,SR,GC,RZ,~DAE,~DSE
B0766-3	7	8	8	7	6	5	7	6	2	7	7	8	7	13	7.3	3	0	3	13	MS,RZ,DSE,DAE,GC,SS
B1806-8	6	9	7	7	7	6	5	4	5	8	7	8	6	0	9	0	0	0	0	MS,SS,SG,SR,YF1
B1992-106	7	8	5	7	6	5	5	6	5	8	7	8	6	0	9	0	0	0	8	RZ,MS
B1992-166	9	8	8	9	6	5	7	4	3	8	7	8	3	33	8.0	0	0	0	5	SG,MS,RZ
B2253-4	9	9	8	9	5	5	5	6	4	8	6	8	2	0	9	0	0	0	15	^^SG,RZ,MS,GC
Dakota Crisp	6	9	7	6	8	7	7	7	3	7	6	7	7	10	8.8	3	0	0	28	SR,MS,SS,RZ
Dakota Pearl	5	8	5	5	8	7	6	7	1	8	6	8	7	48	7.3	0	0	8	3	MS,SG,SS,SR
Kennebec	9	8	8	8	9	7	4	3	6	6	9	7	3	18	8.0	13	0	0	5	MS,SG,GC
Marcy	9	9	8	8	7	5	6	5	4	8	7	8	8	48	6.8	0	0	0	3	SR,SS,MS
Milva	6	9	8	8	7	7	5	6	5	8	7	8	4	25	7.8	0	0	3	5	^SG,^PTS,^MS
MSE221-1	6	9	6	5	5	6	6	7	3	6	7	7	6	5	8.3	0	0	5	13	GC,RZ,CS,MS,SR
MSH095-4	6	9	8	6	6	6	4	5	4	6	7	8	4	0	9	3	0	0	18	MS
MSJ461-1	8	8	7	8	6	5	7	5	3	7	5	7	6	53	5.8	0	0	0	3	SR,CS,SS,RZ
NY125	6	8	7	7	7	6	4	6	5	8	6	7	7	0	9	0	0	0	10	SR,RZ,MS,SG
NYY18-16	5	9	8	6	6	6	6	6	5	8	7	8	8	0	9	3	0	0	5	SS,RZ
NYY28-9	7	8	7	8	9	6	4	5	5	7	7	8	5	8	8.5	0	0	0	18	MS,RZ,SR,SS
NYY36-4	9	9	8	9	9	7	4	6	5	8	8	8	7	33	8.0	0	0	0	10	SR,SS,RZ,CS,MS
Satina	9	9	8	9	7	6	5	7	3	8	7	7	3	53	7.0	0	0	0	0	^^SG,RZ
Snowden	6	9	6	7	5	5	7	6	2	5	6	8	5	15	8.3	0	0	3	0	MS,SS
Superior	6	8	7	4	6	6	6	7	3	5	6	8	5	0	9	0	0	5	15	SS,FS,SR,MS,CS,RZ
Yukon Gold	7	8	4	5	7	8	6	7	3	7	6	7	6	15	8.3	0	0	0	8	SR,MS,CS,RZ,SS

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 8a. NE- 1014 Trial. Total and marketable yield, percentage of total yield by size class, specific gravity, and chip scores of potato clones harvested 115 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Atl.	Size Distribution by Class ² (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³	Chip Color ⁴
				1's	2's	3's	4's	5's	Culls					
AC Sunbury	198	188	74	3	39	55	1	0	2	95	55	1.076	5	
AF2115-1	183	168	65	6	54	36	0	0	3	91	36	1.084	3	
AF2206-9	168	118	46	25	59	10	0	0	6	69	10	1.075	2	
AF2207-4	226	185	72	14	52	30	0	0	5	82	30	1.087	3	
AF2211-9	184	169	66	6	40	49	2	0	2	92	52	1.078	2	
AF2215-1	217	177	69	12	46	36	0	0	6	82	36	1.071	4	
AF2222-2	174	122	48	19	48	22	0	0	11	70	22	1.070	3	
AF2290-8	250	202	79	14	50	30	1	0	6	80	30	1.059	4	
Atlantic	271	257	100	4	35	60	0	0	1	95	60	1.075	3	
B1806-8	297	274	107	7	59	33	0	0	0	92	33	1.071	.	
Katahdin	186	170	67	7	45	47	0	0	2	91	47	1.073	3	
Kennebec	286	252	98	5	34	53	1	0	7	88	54	1.084	2	
NY125	230	192	75	15	62	21	0	0	2	83	21	1.069	.	
NY126	242	227	89	4	31	62	0	0	3	94	62	1.078	2	
NY127	290	245	97	12	40	43	1	0	4	84	44	1.064	1	
NY128	254	219	86	13	50	36	0	0	1	86	36	1.075	3	
Snowden	277	248	97	8	42	47	0	0	3	90	48	1.076	3	
Superior	207	185	72	10	48	41	1	0	1	90	42	1.069	4	
Yukon Gold	169	146	56	9	41	45	1	0	4	87	46	1.076	.	
Grand Mean	227	197												
CV(%)	11	13												
LSD(K=100)	33.3	32.9												

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4" Culls = all defective potatoes.

³ Determined by weight in air/water method.

⁴ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC: 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 8b. NE-1014 Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 115 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AC Sunbury	8	9	9	5	6	7	6	7	3	8	6	8	6	0	9	0	0	3	3	CS,SR,MS,YF1
AF2115-1	5	9	8	6	6	5	7	6	3	7	6	8	7	0	9	0	0	0	3	GC,SG,MS,RZ
AF2206-9	5	8	7	5	6	7	5	7	3	7	4	7	3	0	9	3	0	0	3	^MS,SR
AF2207-4	6	9	8	7	5	5	7	6	4	8	5	7	4	0	9	0	0	0	0	MS,SS,SR
AF2211-9	7	9	8	6	5	5	7	7	2	6	7	8	7	10	7.5	0	5	3	10	MS,SS
AF2215-1	6	9	8	6	9	8	7	6	5	7	7	7	5	3	8.8	0	0	0	3	^MS,SR,EL,SS
AF2222-2	8	9	8	6	6	6	7	5	5	8	6	8	4	8	8.3	0	0	0	3	MS,GC,SS,RZ
AF2290-8	6	8	8	7	6	6	5	7	5	8	6	6	4	90	6.5	0	3	38	0	RZ,MS,SG
Atlantic	6	8	8	5	5	5	7	6	2	6	7	8	7	53	6.5	5	0	0	0	MS,GC,SS
B1806-8	6	9	8	6	7	5	6	6	2	7	6	8	7	0	9	0	0	0	13	MS,YF1
Katahdin	7	9	7	7	8	7	5	7	5	8	6	8	6	3	8.8	0	0	3	5	MS,SS,SR
Kennebec	9	9	8	9	8	7	5	6	5	6	8	8	5	3	8.8	0	0	0	0	MS,SS,SG
NY125	6	9	8	6	7	6	6	7	4	8	5	8	6	0	9	0	0	0	3	MS,SG,YF2
NY126	6	9	8	7	5	6	7	6	3	8	7	8	8	0	9	0	0	0	0	MS,SR,RZ,YF2
NY127	6	9	8	6	7	7	7	7	2	6	6	7	4	0	9	0	5	0	5	MS,GC,SS,SR
NY128	7	9	8	8	6	5	7	6	1	6	6	8	7	0	9	0	0	0	3	MS
Snowden	9	9	8	8	5	5	7	5	2	5	6	7	6	3	8.5	0	5	0	0	MS,SG,IL,SR
Superior	5	9	9	4	5	5	5	7	4	6	6	8	6	0	9	0	0	13	10	SR,MS
Yukon Gold	8	8	8	5	7	8	6	6	5	7	7	7	7	3	8.8	0	0	0	3	SR,MS,SG,YF2

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 9a. NERD Trial. Total and marketable yield, percentage of total yield by size class, and specific gravity, of potato clones harvested 112 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

CLONE	Total Yield cwt/A	Marketable Yield cwt/A	% Chieftain	Size Dist. by Class (%) ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³
				1's	2's	3's	4's	5's	Cull's			
AC Red Island	234	188	94	18	65	15	0	0	2	80	15	1.068
AF 2393-7	166	96	44	43	54	1	0	0	2	55	1	1.060
B1816-5	180	151	76	13	63	21	0	0	3	84	21	1.067
B1952-2	198	178	88	8	59	31	0	0	2	90	31	1.068
Cherry Red	189	163	80	9	66	20	0	0	4	86	20	1.074
Chieftain	237	207	100	7	41	46	0	0	6	87	46	1.061
Dark Red Norland	156	117	56	16	66	8	0	0	10	74	8	1.058
La Rouge	263	228	110	9	62	25	0	0	4	87	25	1.065
ND5483-1R	188	155	79	14	61	22	0	0	4	82	22	1.057
ND7132-1R	235	209	104	9	73	15	0	0	3	88	15	1.058
NDTX731-1R	144	112	56	18	56	22	0	0	4	78	22	1.058
NorDonna	222	170	84	12	43	33	0	0	12	76	33	1.061
NY129	232	210	105	6	45	45	0	0	3	91	45	1.059
NY136	258	224	108	12	56	30	0	0	2	86	30	1.065
Oscar	248	191	95	18	67	10	0	0	5	77	10	1.079
Grand Mean	210	173										
CV(%)	15	18										
LSD(K=100)	44.8	42.0										

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

Table 9b. NERD Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 112 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AC Red Island	6	8	8	5	2	7	6	6	3	8	6	8	5	0	9	0	5	0	0	SS,SR,MS,FS,SiSc
AF 2393-7	5	8	5	4	2	7	5	6	3	7	4	8	7	0	9	0	5	0	0	MS,SR,SG,CS,FS
B1816-5	6	9	8	5	1	6	6	5	5	7	4	8	6	13	8.0	0	0	0	0	MS,SR,SG,IL,RZ
B1952-2	6	8	8	5	1	7	5	4	4	7	5	8	6	0	9	0	18	3	0	MS,GC,IL,SS,SiSc
Cherry Red	6	9	8	5	2	6	6	6	4	6	6	8	5	0	9	0	0	0	3	SR,SiSc,MS,IL,FS,RZ
Chieftain	9	9	8	6	3	8	6	3	2	6	7	8	4	40	7.3	0	3	0	0	MS,SR,SS,SG,IL,RZ
Dark Red Norland	5	8	4	3	3	7	6	7	3	7	5	8	4	5	8.8	0	0	0	0	RZ,MS,GC,SS,SG
La Rouge	6	9	8	5	3	8	7	5	3	5	7	7	3	0	9	0	0	5	0	MS,SR,IL,CS
ND5483-1R	5	8	5	5	2	8	6	4	2	8	4	7	4	0	9	0	0	0	3	MS,SR,IL,FS
ND7132-1R	5	9	8	6	2	6	7	9	5	7	5	8	5	3	8.8	3	3	0	0	SiSc,SS,MS,IL,FS
NDTX731-1R	5	7	4	4	2	7	5	5	2	7	5	8	5	0	9	0	13	0	0	MS,SR,FS,SG,RZ,ID,IL
NorDonna	6	8	8	5	2	7	6	7	2	7	5	6	5	0	9	0	0	0	0	^SG,SR,MS,RZ,IL
NY129	8	9	9	7	2	6	7	5	2	8	6	7	6	30	7.8	0	0	0	0	SiSc,FS,MS,IL,SR,RZ,GC
NY136	7	8	8	5	2	7	6	6	2	8	6	8	7	0	9	0	0	0	0	STST,FS,SR,SS,SiSc,STST
Oscar	9	9	9	9	3	7	5	7	6	7	7	8	1	80	5.3	0	0	0	0	^^SG,MS,SS

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 10a. Unreplicated Trial. Total and marketable yield, percentage of total yield by size class, specific gravity, and chip scores of potato clones harvested 113 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Total Yield cwt/A	Marketable Yield cwt/A	% Atlantic	Size Dist. by Class (%) ² (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³
				1's	2's	3's	4's	5's	Cull's				
AF 2171-28	87	66	37	12	45	30	0	0	13		75	30	1.073
AF 2662-2	101	75	42	12	63	11	0	0	14		74	11	1.065
AF 2668-8	148	106	60	22	63	8	0	0	6		71	8	1.075
AF 2677-1	104	82	46	11	71	7	0	0	11		78	7	1.073
AF 2677-10	152	132	74	8	68	19	0	0	5		87	19	1.076
AF 2684-3	158	121	68	7	67	9	0	0	17		76	9	1.065
AF 2685-1	162	150	84	3	37	55	0	0	5		92	55	1.073
AF 2687-2	227	174	98	8	40	36	0	0	16		76	36	1.075
AF 2698-2	215	162	91	6	35	40	0	0	18		75	40	1.071
AF 2922-1	162	93	53	32	55	3	0	0	11		58	3	1.077
Atlantic	198	179	100	6	35	54	0	0	4		90	54	1.074
B2276-1	193	157	78	7	45	36	0	0	12		81	36	1.071
B2281-3	243	228	114	4	35	57	2	0	2		94	59	1.071
B2307-3	282	228	114	8	45	34	2	0	11		81	36	1.076
B2319-1	220	68	34	45	31	0	0	0	24		31	0	1.081
B2327-2	181	105	53	37	58	0	0	0	5		58	0	1.069
B2407-1	156	100	50	22	56	8	0	0	14		64	8	1.070
B2414-126	193	141	80	21	66	7	0	0	6		73	7	1.090
B2418-124	111	71	35	17	56	8	0	0	19		64	8	1.069
B2424-121	114	94	46	13	47	36	0	0	5		82	36	1.066
B2434-121	194	86	42	9	30	15	0	0	47		44	15	1.078
B2444-121	190	123	60	22	57	7	0	0	13		65	7	1.077

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

Table 10b. Unreplicated Trial. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 113 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AF 2171-28	5	8	8	5	9	7	4	4	4	8	6	7	5	0	9	20	40	0	10	SR,MS
AF 2662-2	5	8	7	4	6	7	6	6	3	8	5	7	5	0	9	0	0	0	10	SR,MS,SS
AF 2668-8	6	9	8	7	5	5	5	7	4	8	5	8	4	0	9	0	0	0	20	MS,SG,SR
AF 2677-1	5	8	7	4	6	6	6	6	2	7	5	7	4	0	9	0	0	0	0	IL,SR
AF 2677-10	6	8	6	4	7	6	5	6	5	7	5	7	6	0	9	0	0	0	10	MS,SR,IL
AF 2684-3	6	9	7	6	6	6	5	6	6	8	7	6	1	50	7	0	0	0	0	SR,MS
AF 2685-1	9	8	6	5	6	7	7	7	2	7	6	7	6	0	9	0	0	0	0	FS,SR,MS
AF 2687-2	6	8	8	6	6	6	5	6	3	8	7	6	5	40	7	0	0	0	0	FS,SR
AF 2698-2	6	8	5	7	6	6	7	7	4	8	7	5	5	0	9	0	0	0	0	^CS
AF 2922-1	9	9	8	9	5	5	6	6	2	8	4	7	5	10	8	0	0	0	0	SR,SG
Atlantic	6	8	6	5	5	5	6	6	2	7	7	8	6	45	6.5	0	0	0	0	MS,GC,SR,FS
B2276-1	6	8	8	5	5	5	5	5	3	7	6	7	4	0	9	0	0	0	0	SG,SR,MS
B2281-3	9	9	8	7	6	6	6	5	3	8	7	8	8	0	9	0	0	0	0	CS,SS
B2307-3	6	8	6	6	8	8	7	7	2	8	6	8	7	10	8	0	0	0	0	SS,MS,SR
B2319-1	6	8	6	5	7	6	7	7	2	7	3	6	4	0	9	0	0	0	0	^CS,SR,SG,YF2
B2327-2	5	7	4	3	2	7	7	7	4	8	4	7	6	0	9	0	0	0	0	SR
B2407-1	5	8	6	4	3	6	7	7	4	7	5	8	5	0	9	0	10	0	0	SR,SG,SS
B2414-126	6	8	6	4	9	7	6	7	3	7	5	8	5	0	9	0	0	0	0	GC,SR
B2418-124	8	9	8	9	9	7	6	5	2	8	6	8	6	20	7	0	0	0	20	MS,SG
B2424-121	6	5	8	5	6	6	7	7	2	7	6	8	5	30	6	0	10	0	0	MS
B2434-121	8	9	9	9	6	6	6	6	3	8	6	8	1	30	8	0	0	0	0	^^SG,MS,SR
B2444-121	6	7	5	7	6	6	6	7	2	7	5	7	5	0	9	20	0	0	0	SG,SR,YF2

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 10a. Continued.

Clone	Total Yield cwt/A	Marketable Yield cwt/A % Atlantic		Size Dist. by Class (%) ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³
				1's	2's	3's	4's	5's	Cull's			
B2445-12	210	149	73	20	53	18	0	0	10	71	18	1.063
B2445-4	177	157	77	6	40	49	0	0	5	89	49	1.071
B2448-2	253	183	90	25	68	5	0	0	2	73	5	1.076
B2448-5	217	143	70	24	59	7	0	0	10	66	7	1.077
B2449-1	317	165	81	6	20	30	2	0	42	52	32	1.068
B2449-3	306	101	49	9	23	10	0	0	58	33	10	1.073
B2451-2	259	113	55	8	29	15	0	0	49	44	15	1.072
B2451-4	200	151	74	15	64	12	0	0	9	76	12	1.068
B2452-3	237	205	100	3	23	61	3	0	10	86	64	1.069
B2467-21	185	141	71	13	42	35	0	0	11	76	35	1.080
BCO00188-2	123	44	22	38	35	0	0	0	26	35	0	1.062
BNC143-4	328	274	206	9	27	56	0	0	7	84	56	1.079
BNC145-1	336	253	191	16	49	26	0	0	9	75	26	1.069
BNC150-7	210	180	90	8	68	18	0	0	6	86	18	1.070
BNC40-2	170	153	115	5	53	37	0	0	5	90	37	1.072
BNC41-4	107	52	39	46	49	0	0	0	5	49	0	1.074
BNC44-1	171	67	51	16	28	12	0	0	45	39	12	1.073
BNC47-1	181	159	120	11	65	23	0	0	2	88	23	1.072
BNC47-6	197	187	141	5	39	50	5	0	1	95	56	1.074
BNC48-1	170	144	109	13	56	29	0	0	3	85	29	1.074
BNC48-2	147	118	89	12	34	46	0	0	9	80	46	1.071
BNC48-3	143	104	79	12	46	27	0	0	15	73	27	1.069

¹ DAP = Days After Planting; DVK = Days to Vine Kill² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.³ Determined by weight in air/water method.

Table 10b. Continued.

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
B2445-12	5	8	4	4	6	5	6	6	5	8	6	7	4	0	9	0	0	0	0	SR,MS,FS
B2445-4	6	9	6	5	5	5	6	6	5	8	7	8	5	30	7	0	0	0	0	MS,SG,SS
B2448-2	6	7	8	5	6	6	4	7	2	8	4	7	4	10	8	0	0	0	0	SR
B2448-5	5	9	7	4	9	7	6	7	2	7	4	6	4	0	9	0	0	0	20	SG,SR,FS,YF1
B2449-1	6	9	8	9	6	6	6	6	3	8	7	5	2	30	7	0	0	0	0	GC,SR,MS,SG,CS,SS
B2449-3	6	8	5	7	5	6	6	7	3	8	7	4	2	70	7	0	0	0	0	SG,SR,GC,^CS
B2451-2	6	9	7	6	5	5	5	5	3	8	7	5	4	0	9	0	0	0	10	^CS
B2451-4	6	8	8	6	5	5	7	7	4	8	6	8	6	0	9	0	0	0	0	SR,CS
B2452-3	5	8	5	5	6	5	6	6	4	8	8	7	6	20	8	0	0	0	0	SR,SS
B2467-21	6	9	7	6	6	5	7	7	2	8	7	8	7	10	8	0	0	0	0	SR,MS,SG,YF1
BCO00188-2	4	5	2	5	9	7	7	7	1	8	3	8	4	0	9	0	0	0	0	SG,SS
BNC143-4	9	9	8	9	5	5	5	6	3	7	7	7	5	80	7	0	0	0	0	SG,CS
BNC145-1	6	9	8	6	5	5	6	5	4	8	6	7	6	10	8	0	0	0	0	SR,SG
BNC150-7	6	9	8	9	5	5	7	5	4	8	5	8	5	70	8	0	0	0	0	SG,MS
BNC40-2	6	8	8	6	5	5	5	7	3	8	7	7	6	100	5	0	0	0	0	SR,SG,MS
BNC41-4	5	8	5	4	6	5	6	7	2	7	3	8	5	0	9	0	0	0	20	SR,MS
BNC44-1	5	8	7	5	6	5	5	7	3	8	6	8	4	0	9	0	0	0	30	^SG
BNC47-1	5	8	6	4	5	5	6	7	2	8	5	8	7	10	4	10	0	0	0	MS,GC
BNC47-6	6	8	7	5	6	5	7	7	3	7	8	7	7	10	8	0	0	0	20	IL,SR
BNC48-1	6	6	7	5	5	5	7	6	3	8	5	8	6	0	9	0	0	0	0	MS,SR
BNC48-2	4	6	7	5	6	5	6	7	3	7	6	7	3	0	9	0	0	0	0	FS,SR,MS,~DAE
BNC48-3	5	5	6	5	5	5	5	6	2	8	5	6	5	0	9	0	0	0	0	SR,MS,FS

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 10a. Continued.

Clone	Total Yield cwt/A	Marketable Yield		Size Dist. by Class (%) ² (% of total yield)						1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ³
		cwt/A	% Atlantic	1's	2's	3's	4's	5's	Cull's			
BNC49-1	239	216	163	8	37	51	2	0	2	90	54	1.068
BNC49-2	270	239	180	9	38	51	0	0	3	88	51	1.072
BNC49-6	250	192	144	11	54	23	0	0	12	77	23	1.060
BP153-1	180	165	83	5	24	65	3	0	3	92	68	1.061
BP153-2	172	136	68	19	61	18	0	0	2	79	18	1.073
NYY73-49	251	214	120	8	39	44	2	0	7	85	46	1.080
Snowden	240	216	126	9	56	33	0	0	2	89	33	1.074
Superior	177	156	93	7	46	42	1	0	5	88	42	1.070
Svart Valdres	189	64	36	63	34	0	0	0	3	34	0	1.084
Grand Mean	198	149										

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² Size classes: 1's < 1 7/8"; 2's 1 7/8 to 2 1/2"; 3's 2 1/2 to 3 1/4"; 4's 3 1/4 to 4"; 5's ≥ 4"; Culls = all defective potatoes.

³ Determined by weight in air/water method.

Table 10b. Continued.

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
BNC49-1	6	9	6	5	6	5	6	7	2	8	7	8	7	10	7	0	0	0	10	MS,SR
BNC49-2	6	8	4	6	5	5	6	5	2	7	7	8	6	0	9	0	0	0	0	GC,MS,SG
BNC49-6	4	7	3	4	5	5	6	6	3	7	6	6	6	10	6	0	0	0	20	MS,CS,SG,SR,FS
BP153-1	5	8	6	5	6	5	7	6	4	7	7	5	6	0	9	0	0	0	0	pink eyes,MS,SR
BP153-2	6	8	5	4	9	5	5	7	4	8	4	8	5	0	9	0	0	0	20	pink eyes,MS
NYY73-49	6	9	8	6	8	6	7	6	3	8	7	7	6	20	7	0	0	0	0	SR,MS,FS
Snowden	7	9	7	7	5	5	6	5	2	7	5	8	5	13	8	0	0	0	0	MS,CS,RZ,SR
Superior	5	9	7	4	6	6	6	7	3	7	6	8	5	0	9	0	0	0	10	SR,MS,CS
Svart Valdres	9	9	8	9	1	6	5	7	4	7	3	8	1	50	7	0	0	0	0	^^SG,FS,CS,RZ

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 11a. Early Generation Yield Trial One. Total and marketable yield, percentage of total yield by size class, specific gravity, and chip scores of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Selection Location & Year ²			Total Yield cwt/A	Marketable Yield		Size Distribution by Class ³ (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ⁴	Chip Color ⁵
	2000	2001	2002		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls					
Atlantic	N/A	N/A	N/A	206	187	100	7	50	40	0	0	3	90	40	1.082	4	
B2179-74	NC	ME	NC	109	81	43	15	57	16	0	0	12	73	16	1.063	5	
B2192-21	N/M	ME	ME	164	66	38	57	39	1	0	0	3	40	1	1.079	3	
B2193-20	ME	N/M	NC	197	146	81	25	67	7	0	0	1	74	7	1.077	2	
B2205-9	NC	NC	ME	174	133	73	20	66	10	0	0	4	77	10	1.068	4	
B2216-103	ME	NC	NC	161	119	66	23	68	5	0	0	3	74	5	1.077	4	
B2216-151	NC	N/M	ME	159	125	67	18	66	13	0	0	3	79	13	1.070	2	
B2219-5	ME	N/M	NC	200	157	83	21	67	10	0	0	2	78	10	1.074	3	
B2219-50	N/M	NC	NC	103	87	45	11	57	26	0	0	5	83	26	1.069	3	
B2221-195	ME	ME	NC	148	143	77	3	27	63	6	0	1	96	70	1.078	2	
Snowden	N/A	N/A	N/A	213	179	96	13	65	18	1	0	3	84	19	1.080	2	
Superior	N/A	N/A	N/A	131	108	58	14	61	21	0	0	4	82	21	1.073	4	
Grand Mean				164	127												
CV(%)				17	19												
LSD(K=100)				38.9	33.3												

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² NC = North Carolina; ME = Maine; N/M = Selected at both locations

³ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4" Culls = all defective potatoes.

⁴ Determined by weight in air/water method.

⁵ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC: 1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 11b. Early Generation Trial One. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³							Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR		
Atlantic	6	8	8	5	5	5	7	7	2	5	7	7	7	53	7.8	0	0	0	25	MS,SR	
B2179-74	5	6	8	5	8	8	5	7	5	8	6	7	3	0	9	0	0	0	20	SR,^MS,SG	
B2192-21	6	9	8	5	9	7	7	7	3	8	3	7	5	0	9	3	3	0	15	SR,^MS,SG,RZ,BS	
B2193-20	6	9	9	6	5	5	7	6	2	8	5	8	7	0	9	0	0	0	5	GC,MS,SR	
B2205-9	6	8	8	5	6	6	7	7	4	8	5	7	5	0	9	0	0	0	10	SR,MS	
B2216-103	5	9	8	5	6	6	7	7	3	8	4	7	5	3	8.8	0	0	0	20	SR	
B2216-151	6	8	8	5	6	7	7	7	3	7	6	7	5	0	9	0	0	0	8	SR	
B2219-5	6	8	8	6	5	5	7	6	2	8	6	8	6	5	8.8	0	10	0	10	SR,SG,SS	
B2219-50	7	9	8	5	5	5	6	7	4	8	6	7	6	0	9	0	0	0	13	SR,MS,SS,RZ	
B2221-195	8	9	8	8	5	6	7	6	4	8	8	8	7	0	9	0	0	0	10	RZ,SS	
Snowden	8	9	7	8	5	5	7	7	2	5	6	7	6	18	8.3	0	3	0	8	MS,SR,DSE,DSE	
Superior	5	9	8	4	6	6	6	7	3	5	6	7	4	3	8.8	0	0	0	13	MS	

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Table 12a. Early Generation Yield Trial Two. Total and marketable yield, percentage of total yield by size class, specific gravity, and chip scores of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

and a chip scores of potato clones harvested at the ROSS, PARKER, WDA, AK, Plymouth, Washington, SD, KS 2000																	
Clone	Selection Location & Year ²			Total Yield cwt/A	Marketable Yield		Size Distribution by Class ³ (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ⁴	Chip Color ⁵
	2001	2002	2003		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls					
	Atlantic	N/A	N/A	N/A	214	194	100	9	44	47	0	0	1	90	47	1.076	3
B2272-22	ME	NC	NC	147	131	71	7	38	51	1	0	3	89	52	1.068	4	
B2273-75	NC	N/M	NC	181	162	88	8	33	55	1	0	3	89	56	1.070	4	
B2280-134	NC	NC	NC	159	139	76	12	66	21	0	0	1	87	21	1.069	3	
B2280-86	NC	NC	NC	179	153	83	13	57	28	0	0	2	86	28	1.076	2	
B2282-107	ME	ME	NC	188	123	67	33	62	3	0	0	2	65	3	1.072	1	
B2287-23	NC	N/M	NC	178	167	93	4	27	63	4	0	3	94	67	1.068	5	
B2287-38	NC	ME	ME	4	4	2	33	43	20	0	0	4	63	20	.	.	
B2290-9	ME	NC	NC	204	170	91	16	70	13	0	0	1	83	13	1.082	3	
B2293-156	ME	ME	ME	159	127	70	16	64	16	0	0	4	80	16	1.063	3	
B2293-34	NC	ME	ME	186	169	94	7	63	27	1	0	2	91	27	1.068	4	
B2351-101	ME	ME	ME	142	113	61	17	73	6	0	0	4	79	6	1.073	3	
B2351-148	N/M	NC	ME	181	156	85	5	42	43	2	0	8	87	45	1.071	4	
Snowden	N/A	N/A	N/A	212	177	94	16	66	17	0	0	0	83	17	1.077	1	
Superior	N/A	N/A	N/A	156	135	72	11	55	31	0	0	3	86	31	1.071	4	
Grand Mean				166	141												
CV(%)				13	16												
LSD(K=100)				27.9	30.5												

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² NC = North Carolina; ME = Maine; N/M = Selected at both locations

³ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4" Culls = all defective potatoes.

⁴ Determined by weight in air/water method.

⁵ Chip Color Ratings conducted by the NCSU Potato Breeding Program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

Table 12b. Early Generation Trial Two. Plant vine type, disease and air pollution scores, maturity at ca. 3 weeks prior to harvest, and external and internal tuber attributes of potato clones harvested 118 DAP¹ at the NCSU VGJREC/NCDA TRS, Plymouth, Washington Co., NC - 2005

Clone	Plant Data ²				Tuber Data ²									% Internal Defects ³						Comments ⁴
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
Atlantic	6	7	7	5	5	5	7	6	2	5	6	8	7	83	7.0	0	0	3	8	GC,RZ
B2272-22	6	7	7	5	6	6	7	7	2	8	6	8	7	3	8.8	0	0	0	3	RZ,FS,SR,GC,MS,SG
B2273-75	7	8	6	5	6	5	7	6	2	7	6	8	7	30	7.5	0	0	23	18	MS,SG,RZ,FS,SR
B2280-134	6	9	7	6	6	5	7	5	1	8	5	8	7	0	9	0	0	0	0	MS,SS,RZ
B2280-86	6	9	7	5	9	6	7	6	2	7	6	8	7	0	9	0	0	0	3	MS,SS,STST
B2282-107	6	9	7	5	9	8	5	7	4	8	3	8	8	0	9	0	0	0	10	SR,MS
B2287-23	8	9	8	9	6	6	6	5	4	8	7	8	6	3	8.8	0	0	0	3	MS,SS,RZ,SR
B2287-38	.	.	.	.	6	6	6	4	4	8	5	8	4	0	9	0	0	3	0	GC, No Yld, Dormant Clone
B2290-9	6	9	8	7	5	5	7	6	2	8	5	8	7	60	7.8	0	0	0	5	SG,RZ,IL,SR
B2293-156	7	8	6	4	5	5	5	7	4	8	5	7	7	0	9	0	0	0	3	SG,SS,SR
B2293-34	6	8	6	4	6	6	6	6	6	8	7	8	5	0	9	0	0	0	25	MS,SS
B2351-101	5	9	7	5	6	7	6	7	5	8	7	8	4	0	9	0	0	0	13	MS
B2351-148	6	9	8	5	8	7	7	7	3	8	6	8	5	0	9	0	0	0	13	SS,SG
Snowden	6	9	6	7	5	5	7	6	2	5	5	8	5	5	8.3	0	0	0	5	DSE,DAE
Superior	5	9	7	4	6	6	6	7	3	5	5	8	4	0	9	0	0	3	13	MS,SR

¹ DAP = Days After Planting; DVK = Days to Vine Kill

² See NE1014 Standard Potato Rating System for key to scores in Appendix 2.

³ Percentage determined from 10 randomly selected potatoes /rep (40 total) in size classes 3 and 4. HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

⁴ See Appendix 4 for Comment Codes

Appendix 1: LAND MANAGEMENT CONDITIONS

Location: Black Gold Farms, Gum Neck, Tyrrell Co., NC

Trial Title: Black Gold Farms Variety Trial

Trial Design: Randomized complete block, four replications

Plot Dimensions: Nine 21' rows at 34' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Roundup Original Max 19.34 fl oz/A (pre-plant)
Weedar 16.52 fl oz/A (pre plant)
Dual Magnum 1.42 pts/A
Sencor DF .51lbs/A
Matrix .57 oz/A

Fertilizer: 149 lbs N, 50 lbs P, 159 lbs K broadcast
48 lbs N (spray)

Insect Control: Baythroid 2 oz/A

Actara 1.5 oz/A

Disease Control: Amistar 96 oz/A
Manzate 75DF 2 lbs/A
Curzate 60DF 3.2 oz/A

Irrigation: None

Vine Kill: None

Location: Black Gold Farms, Gum Neck, Tyrrell Co., NC

Trial Title: Snack Food Association Trial

Trial Design: Randomized complete block, four replications

Plot Dimensions: Ten 21' rows at 34' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Roundup Original Max 19.34 fl oz/A (pre-plant)
Weedar 16.52 fl oz/A (pre plant)
Dual Magnum 1.42 pts/A
Sencor DF .51lbs/A
Matrix .57 oz/A

Fertilizer: 149 lbs N, 50 lbs P, 159 lbs K broadcast
48 lbs N (spray)

Insect Control: Baythroid 2 oz/A

Actara 1.5 oz/A

Disease Control: Amistar 96 oz/A
Manzate 75DF 2 lbs/A
Curzate 60DF 3.2 oz/A

Irrigation: None

Vine Kill: None

Appendix 1: LAND MANAGEMENT CONDITIONS (Cont'd.)

Location: James Brother's Farms, Weeksville, Pasquotank Co., NC

Trial Design: Randomized complete block, four replications

Plot Dimensions: Eighteen 21' rows at 40' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Sencor 1/2 to 3/4 lbs/A

Fertilizer: 1250 lbs 14-7-14 broadcast

Insect Control: Leverage 3.75 oz/A

Disease Control: Bravo 2.5pt/A

Irrigation: None

Vine Kill: Relay 3pt/A

Location: McCotter Farms, Vandemere, Pamlico Co., NC

Trial Design: Randomized complete block, four replications

Plot Dimensions: Fifteen 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Sencor 1.3lbs/A

Fertilizer: 181 lbs N, 36 lbs P, 80 lbs K

Insect Control: Provado 3.75 fl oz/A

Disease Control: Manex II 1 qt/50 gal

Ridomil 2 lbs/A

Quadris 11 fl oz/A

Irrigation: None

Vine Kill: None

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Specialty Crops Variety Trial

Trial Design: Randomized complete block, four replications

Plot Dimensions: Sixteen 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence

Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast

30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A

Leverage 2.7 5oz/A

Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Appendix 1: LAND MANAGEMENT CONDITIONS (Cont'd.)

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Round White Variety Trial One

Trial Design: Randomized complete block, four replications

Plot Dimensions: Twenty-two 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence
Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast
30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A
Leverage 2.7 5oz/A
Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Round White Variety Trial Two

Trial Design: Randomized complete block, four replications

Plot Dimensions: Twentyfour 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence
Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast
30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A
Leverage 2.7 5oz/A
Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: NE 10-14 White Variety Trial

Trial Design: Randomized complete block, four replications

Plot Dimensions: Nineteen 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence
Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast
30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A
Leverage 2.7 5oz/A
Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Appendix 1: LAND MANAGEMENT CONDITIONS (Cont'd.)

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: NE 10-14 Red Variety Trial

Trial Design: Randomized complete block, four replications

Plot Dimensions: Fifteen 21' rows at 38' row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence

Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast

30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A

Leverage 2.7 5oz/A

Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Unreplicated Variety Trial

Trial Design: Randomized complete block

Plot Dimensions: Sixteen 21' rows at 38" row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence

Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast

30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A

Leverage 2.7 5oz/A

Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Early Generation Yield Trial One

Trial Design: Randomized complete block, four replications

Plot Dimensions: Twelve 21' rows at 38" row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence

Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast

30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A

Leverage 2.7 5oz/A

Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Appendix 1: LAND MANAGEMENT CONDITIONS (Cont'd.)

Location: Tidewater Research Station, Plymouth, Washington Co., NC

Trial Title: Early Generation Yield Trial Two

Trial Design: Randomized complete block, four replications

Plot Dimensions: Fifteen 21' rows at 38" row spacing, 28 hills per row

Seed piece Treatment: None

Weed Control: Dual Magnum 1.5pt/A pre-emergence

Sencor 1lb/A pre-emergence

Fertilizer: 648lbs, 18-18-18 broadcast

30-0-0 N 25gal

Insect Control: Admire 20F 17oz/A

Leverage 2.7 5oz/A

Baythoid 2EC 2.8oz/A

Disease Control: Bravo Weatherstik 1.5pt/A

Irrigation: None

Vine Kill: None

Appendix 2: STANDARDIZED NE184 RATING CODES FOR PLANT AND TUBER CHARACTERISTICS

Tuber Color

1. purple
2. red
3. pink
4. dark brown
5. brown
6. tan/light brown
7. buff
8. white
9. cream

Tuber Texture

1. partial russet
2. heavy russet
3. moderate russet
4. light russet
5. netted
6. slight net
7. moderately smooth
8. smooth
9. very smooth

Tuber Cross-section

1. very flat
2. --
3. flat
4. --
5. intermediate/oval
6. --
7. mostly round
8. --
9. very round

Tuber Skin Set

1. very poor
2. --
3. poor
4. --
5. fair
6. --
7. good
8. --
9. excellent

Tuber Shape

1. very round
2. mostly round
3. round to oblong
4. mostly oblong
5. oblong
6. oblong to long
7. mostly long
8. long
9. cylindrical

Tuber Eye Depth

1. -
2. deep
3. +
4. -
5. medium
6. +
7. -
8. shallow
9. +

Tuber Size (GCY Scale)

1. small
2. --
3. small-medium
4. --
5. medium
6. --
7. medium-large
8. --
9. large

Tuber Appearance

1. very poor
2. --
3. poor
4. --
5. fair
6. --
7. good
8. --
9. excellent

Tuber Disease Rating

1. very severe
2. --
3. severe
4. --
5. moderate
6. borderline
7. slight
8. very slight
9. none

Plant Type

1. decumbent-poor canopy
2. decumbent-fair canopy
3. decumbent-good canopy
4. spreading-poor canopy
5. spreading-fair canopy
6. spreading-good canopy
7. upright-poor canopy
8. upright-fair canopy
9. upright-good canopy

Plant Disease and Pollution Reaction

1. Dead
2. -
3. severe
4. +
5. moderate
6. -
7. +
8. slight
9. none

Maturity

1. -
2. early
3. +
4. -
5. medium
6. +
7. -
8. late
9. +

Appendix 3: WEEKLY WEATHER DATA

Tyrrell Co.¹

	Jan	Feb	Mar	Apr	May	Jun	July
Mean Temp	41	40	60	60	63	75	80
Max Temp	70	45	63	84	81	90	90
Min Temp	17	24	26	36	44	55	66
Precip	2.78	0.61	4.12	2.28	6.00	7.66	3.89
30yr Avg	3.95	3.64	4.08	3.43	4.41	4.67	6.39
Precip Dev.	-1.17	-3.03	0.04	-1.15	1.59	2.99	-2.50

Pasquotank Co.

	Jan	Feb	Mar	Apr	May	Jun	July
Mean Temp	43	43	46	58	63	75	79
Max Temp	75	66	70	86	84.9	93	95
Min Temp	14	25	21	36	44.1	52	36
Precip	2.22	2.76	2.45	2.65	5.53	4.97	8.22
30yr Avg	4.18	3.68	4.05	3.04	4.23	4.29	5.67
Precip Dev.	-1.96	-0.92	-1.60	-0.39	1.30	0.68	2.55

Pamlico Co.

	Jan	Feb	Mar	Apr	May	Jun	July
Mean Temp	47	46	49	60	66	77	82
Max Temp	77	68	73	86	90	95	99
Min Temp	19	31	29	39	46	61	71
Precip	3.11	2.52	3.55	3.39	7.13	5.75	5.54
30yr Avg	4.3	4.24	3.91	3.21	4.62	5.38	7.02
Precip Dev.	-1.19	-1.72	-0.36	0.18	2.51	0.37	-1.48

Washington Co.

	Jan	Feb	Mar	Apr	May	Jun	July
Mean Temp	43	44	47	59	64	75	79
Max Temp	77	68	73	88	88	94	99
Min Temp	14	24	22	36	40	54	64
Precip	2.56	2.15	3.32	2.35	4.64	4.13	0.00
30yr Avg	4.22	3.80	4.32	3.37	4.72	4.74	6.08
Precip Dev.	-1.66	-1.65	-1.00	-1.02	-0.08	-0.61	-6.08

¹ **Note:** Totals for Tyrrell county may be inaccurate because of missing data

SOURCE: NCDA via National Climate Center, National Oceanic and Atmospheric Administration.

Appendix 4: COMMENT CODES FOR TABLE B

AC=air cracks
BR=bruise
CPB=colorado potato beetle
CS=common scab
CT=chain tubers
DAE=deep apical eyes
DSE=deep stolen end
EB=early blight
ECB= European corn borer
EL= enlarged lenticels
FS=fusarium wilt
GC=growth cracks
HI= herbicide injury
HS=heat sprouts;
IL=infected lenticels
LB=late blight
LHD=leaf hopper damage
MS=misshaped tubers
PE=pink eye
PR=pink rot
PLRV=potato leaf roll virus
PTS=very pointed tubers
PS=powdery scab
PVA, PVX, PVY=potato viruses A, X, Y
RF=red flesh (RF scale: 1=light red to 3=dark red)
RZ=Rhizoctonia
SEB=stem end browning
SC = star cracking
SG=secondary growth
SIS=silver scurf
SKN=skins
SS=sun scald
SR=soft rot
STST=sticky stolens
TSWV=Tomato Spotted Wilt Virus
VW=Verticillium wilt
WSTD=weak stand
WW=wire worm
YF=yellow flesh (YF scale: 1=light yellow to 3=dark yellow)

Note: ^ before code = high levels; ^^ = very high; ~ = moderate or some