Funding: Fed. Grant/MPIC

2008 POTATO VARIETY EVALUATIONS

**D.S. Douches, J. Coombs, J. Estelle, D. Berry, K. Zarka,
C. Long, W. Kirk, and J. Hao**

**Departments of Crop and Soil Sciences
and Plant Pathology
Michigan State University
East Lansing, MI 48824**

INTRODUCTION

Each year, the MSU potato breeding and genetics team conducts a series of variety trials to assess advanced potato selections from the Michigan State University and other potato breeding programs at the Montcalm Research Farm (Entrican). In 2008, we tested 227 varieties and breeding lines in the replicated variety trials. The variety evaluation also includes disease testing in the scab nursery (MSU Soils Farm, E. Lansing) and foliar and tuber late blight evaluation (Muck Soils Research Farm, Bath). The objectives of the evaluations are to identify superior varieties for fresh or processing markets. The varieties were compared in groups according to market class, tuber type, skin color, and to the advancement in selection. Each season, total and marketable yields, specific gravity, tuber appearance, incidence of external and internal defects, chip color (from the field, 45°F (7.2°C) and 50°F (10°C) storage), as well as susceptibilities to common scab, late blight (foliar and tuber), and blackspot bruising are determined.

PROCEDURE

Ten field experiments were conducted at the Montcalm Research Farm in Entrican, MI. They were planted as randomized complete block designs with two to four replications. The plots were 23 feet (7 m) long and spacing between plants was 10 inches (25.4 cm). *This spacing is a change from the previous 20 years of using 12 inch spacing.* Inter-row spacing was 34 inches (86.4 cm). Supplemental irrigation was applied as needed. The field experiments were conducted on a sandy loam soil that was in corn the previous year and in potatoes 4 years previously.

The most advanced selections in the breeding program were harvested at two dates to evaluate early and late harvest potential (Date-of-Harvest trial: Early and Late). The advanced selections were tested in the Advanced trial, representing selections at a stage between the Round White and the Date of Harvest trials. The other field trials were the Round White, Russet, Adaptation (chip-processors and tablestock), and Preliminary (chip-processors and tablestock) and Transgenic. *Note: We added an early harvest observation trial (92 days), to screen newer lines from the breeding program for early performance potential as out of the field chip-processing and tablestock varieties. The*

early trial is discussed in the breeding report. In each of these trials, the yield was graded into four size classes, incidence of external and internal defects in > 3.25 in.(8.25 cm) diameter (or 10 oz. (283.5 g) for Russet types) potatoes were recorded. Samples were taken for specific gravity, chipping, disease tests and bruising tests. Chip quality was assessed on 25-tuber composite samples, taking two slices from each tuber. Chips were fried at 365°F (185°C). The chip color was measured visually with the SFA 1-5 color chart. Tuber samples were also stored at 45°F (7.2°C) and 50°F (10°C) for chip-processing out of storage in January and March. Advanced selections are also placed in the MPIC B.F. Burt Cargill Commercial Demonstration Storage in Entrican, MI for monthly sampling. The scab nursery at the MSU Soils Farm and the late blight trial at the Muck Soils Research Farm are used for scab and foliar late blight assessment of lines in the agronomic trials. Maturity ratings (1 early - 5 late) were taken for all variety trial plots in late August to differentiate early and late maturing lines.

RESULTS

A. Date of Harvest Trial Varieties:

Chip-processors and Tablestock (Tables 1: Early harvest, and 2: Late harvest)

There were 12 entries that were compared at two harvest dates (96 and 140 days). Atlantic, Snowden, Pike and FL1879 were used as check varieties. The plot yields were average to slightly below average in the early harvest (96 days), and specific gravity values were typical to an average year. On average, there was a 127 cwt/a increase in yield for the second harvest date (140 days). The results are summarized in **Tables 1: Early harvest and 2: Late harvest**. Hollow heart was the most prevalent internal defect in the early harvest this year, although only to a limited degree. FL1879 and MSM171-A showed the highest incidence of hollow heart in the late harvest. Interestingly, the hollow heart standard Atlantic, had less incidence of hollow heart (3%) compared to average years. In the early harvest trial, the best yielding lines were Atlantic, FL1879, MSN105-1, and MSL268-D. MSN105-1 is a round-white tablestock line with bright skin, excellent type, moderate scab resistance, moderate foliar late resistance, and an early maturity. MSL268-D is also a round-to-slightly oval white tablestock line with moderate scab resistance, strong foliar late resistance, and PVY resistance. The highest yielder for the late harvest was FL1879, followed by Atlantic, Snowden, MSN105-1, MSL268-D, and MSN170-A. MSN170-A is a chip-processing line that also offers scab resistance and average specific gravity. MSP459-5 has excellent chip quality (with storage potential), good specific gravity, and moderate scab and late blight resistance. The out-of-the-field chip scores for 2008 were all in the acceptable range with scores of 1.5. MSN170-A and MSP459-5 are being increased for on-farm testing.

B. Advanced Trial (Table 3)

A summary of the 18 entries evaluated Advanced trial results is given in **Table 3**. Overall, the yields for the Advanced trial (140 days) were above average. The highest yielding lines were tightly clustered (and not significantly different) between MegaChip (436 cwt/a), Kalkaska, Beacon Chipper, FL1879, MSI005-20Y, and MSQ176-5 (408 cwt/a). The next highest yielding group was MSK061-4 followed by Snowden, MSQ070-1, and FL2053. Hollow heart and vascular discoloration were the predominant internal defects, with FL1879 and Snowden having the highest levels of hollow heart (18 and 15%, respectively). Specific gravity was average to above average with seven lines having specific gravities higher than Snowden (1.088): MSN191-2Y (1.097), FL2053, MSQ070-1, MegaChip, MSJ147-1, MSK409-1, MSK061-4 (1.088). All entries in the trial had excellent chip-processing quality out of the field, with an SFA score of 1.0. Most of the MSU breeding lines have moderate to strong scab resistance. Kalkaska and Beacon Chipper continue to be consistently high yielding lines with good specific gravity, chip quality, and scab resistance. MSQ176-5 is a round-white tablestock line with excellent tuber type, strong foliar late blight resistance, and moderate scab resistance. Two promising chip-processing lines are MSQ070-1 (chip quality, high specific gravity, scab and late blight resistance) and MSR061-1 (chip quality, good specific gravity, scab and PVY resistance, and moderate late blight resistance). There is enough seed to begin on-farm testing of MSQ070-1 and MSQ176-5 in 2009.

Variety and Advanced Breeding Line Characteristics

Beacon Chipper – a chip processing line that has high yield potential and moderate scab tolerance along with excellent chip-processing quality. Beacon Chipper was named and released in 2005. Yield performance in the USPB/SFA was also high.

MSH228-6 – a chip-processing line with moderate scab resistance. It has a good type and has performed well in on-farm trials.

Kalkaska (MSJ036-A) – an MSU chip-processing selection with high yield potential. It also has a high specific gravity and scab resistance. The tuber type of MSJ036-A is round and attractive.

MSJ126-9Y – an earlier season chip-processing line with excellent chip quality and long-term storage potential. This line also has scab resistance and an attractive type.

MSJ147-1 – a full season storage chipper that also has some early sizing. It has excellent chip-processing quality and a high solids content. It has performed well in on-farm trials and has demonstrated an excellent long-term storage chipping profile.

MSK061-4 – an attractive round-white chip-processing line with good scab resistance. This line produces clean chips with good specific gravity and average yield, with low blackspot bruising, but has a short dormancy.

MSK409-1 – a round-white chip-processing line with good scab resistance. This earlier maturing line has average yield and slightly lower specific gravity.

MSL268-D – is also a round-to-slightly oval white tablestock line with moderate scab resistance, strong foliar late resistance, and PVY resistance. This line has an average yield with mid-early maturity.

MSM171-A – a round-white tablestock line with moderate scab resistance and strong foliar late blight resistance. This line also has an moderately early maturity with a 'Superior' type tuber appearance.

MSM246-B – a round-white chip-processing line with good specific gravity and excellent chip quality that has demonstrated potential for good long-term chip quality.

MSN105-1 – an attractive round-white tablestock line with moderate foliar late blight resistance, moderate scab resistance, and an early maturity.

MSN170-A – a new round-white chip-processing line with good scab resistance, average specific gravity, and good type. This line produces clean chips with good specific gravity and an early maturity, and has storage potential.

MSN191-2Y – an MSU chip-processing selection with a very uniform round type. This newer line produces excellent chips with a high specific gravity and low incidence of internal defects.

MSP459-5 – another new MSU chip-processing selection with scab resistance, average specific gravity, and a good, round type. This line has excellent chip quality with a low incidence of internal defects and storage potential.

The variety release of Kalkaska (MSJ036-A) is currently underway. We have submitted the PVP application to the USDA and the variety release description to the American Journal of Potato Research. Kalkaska is a high yielding, round white potato with an attractive round appearance with shallow eyes. Kalkaska has a strong vine and a full season maturity. This variety has resistance to *Streptomyces scabies* Thaxter (common scab of potato) similar to Pike. Kalkaska also has industry approved chip-processing storage characteristics (light color and low incidence of defects) and it also has better tolerance to blackspot bruise than Snowden. Specific gravity in Michigan averages 1.083, ranging from 1.075 to 1.096. Kalkaska also has a higher marketable yield than Pike and does not express heat necrosis in the tubers. The name Kalkaska was chosen to acknowledge a town located in the Michigan seed growing region.

In December 2004, 2005, 2007, and 2008, the MPIC sponsored a booth at the Great Lakes Fruit, Vegetable, and Farm Market Expo to market Liberator, Michigan Purple and Jacqueline to the farm market/roadside stand market segment. There continues to be a strong interest in specialty potato varieties and a growing demand for new, unique potato varieties. We also showcased some of the newer up-and-coming

selections from the breeding program to get a sense of the interest from growers who stopped by the booth. The description of two of these varieties that fit the specialty potato market can be found below.

Michigan Purple - a tablestock selection with an attractive purple skin. This selection has high yield potential and the tubers have a low incidence of internal defects. The vine maturity is mid-season to mid-early. A thin skin makes this variety a challenge market on a large scale without making adjustments in harvest, washing and grading process. We regard this as a variety that can compete in the red market. Michigan Purple has great potential in the roadside stand and farm markets.

Jacqueline Lee – an oval/oblong tablestock selection with a high tuber set of tubers with a bright skinned, smooth and attractive appearance that is typical of many European cultivars. The tubers have very low incidence of internal defects and good baking quality. It is our best tasting potato! The strength of this selection is also its strong foliar resistance to the US8 genotype of late blight. Vine maturity is similar to Snowden. There is interest in California to market this variety. Jacqueline Lee has great potential in the roadside stand and farm markets.

C. North Central Regional Trial Entries (Tables 4, 5, and 7)

The North Central Trial is conducted in a wide range of environments (11 regional locations) to provide adaptability data for the release of new varieties from Michigan, Minnesota, North Dakota, Wisconsin, and Canada. The funding situation in 2007 negatively affected the number of entries for these trials, and continued in 2008. Fifteen breeding lines from three universities and seven control varieties were tested in Michigan in 2008. The clones were incorporated in the Round White (8 entries), Russet (3 entries), or Adaptation Tablestock (4 entries) trials according to market class. The results are presented in **Tables 4, 5, and 7**. These lines are designated with the superscript^{NCR} in the tables. The MSU lines MSJ316-A, MSJ461-1, MSM171-A, and MSI005-20Y were the Michigan representatives included in the 2008 North Central Trial. MSJ316-A has a uniform type with scab resistance and good chip quality. MSJ461-1 has a good, round type and chip-processing quality combined with strong foliar late blight resistance. MSM171-A a round-white tablestock line with moderate scab resistance, strong foliar late blight resistance, and an early maturity. MSI005-20Y is a yellow-fleshed line with high yield potential and an attractive round appearance.

D. Round White Trial (Table 4)

The 11 lines in the Round White Trial were all round-white chip-processing or tablestock entries from the North Central Regional Trial. The trial was harvested 127 days after planting. The top yielding lines were MSM171-A, Atlantic, and MSI005-20Y. The specific gravities were average to above average in comparison to a typical year in Michigan (1.089 for Atlantic, 1.091 for Snowden). Hollow heart and vascular

discoloration were the predominant internal defects. Lower than typical years, the greatest hollow heart was seen in Atlantic (15%) and Snowden (13%). Vascular discoloration was above average as noted in Snowden (38%). The entries from North Dakota and Wisconsin (ND8307C-3, ND8304-2, W2310-3, W2133-1) were the lowest yielding lines, with the highest percentage of B-size tubers, although W2310-3 did have the highest specific gravity (1.092) in the trial.

E. Russet Trial (Table 5)

The number of entries in the russet trial this year reflects the strong interest in the state for russet varieties. In 2008, 33 lines evaluated after 133 days. The results are summarized in **Table 5**. Russet Burbank and Russet Norkotah were the reference varieties used in the trial. Scab resistance was prevalent among the lines tested, although many of the new breeding lines being evaluated were scab susceptible (10 lines had a scab rating $\geq$ 2.0). Hollow heart and vascular discoloration were the most prevalent internal defects. The highest hollow heart level was observed in MSA8254-2BRUS (40%), AC99375-1RUS (40%), and AOND95292-3RUS (35%). The lines with the highest vascular discoloration were A95109-1 (58%), W2253-5RUS (43%), and W8206-1RUS (40%). Specific gravity measurements were average with Russet Burbank and Russet Norkotah having 1.081 and 1.068 readings, respectively. The yield of the overall trial was above average for most lines in 2008. Off type and cull tubers were found in nearly all lines tested, with the greatest pickouts from Russet Burbank (31%). Vine maturity varied among lines but it did not correlate with yield. The highest yielding entry was A95109-1 with 469 cwt/a US#1 yield, followed by MSA8254-2BRUS. MSA8254-2BRUS is an MSU selection from the USDA/ARS Aberdeen, ID program. Working with Chris Long and the On-Farm Russet Trial results, the following are russet lines that were selected that show potential for Michigan: A95109-1, CO99053-3RUS, AOTX95265-4Ru, CO95172-3Rus, CORN#8, A0008-1TE, CO99100-1RUS, and A98289-1 (control varities were Freedom Russet, Silverton Russet, Goldrush, Canela Russet, and Russet Norkotah). A95109-1 has recently been released as Classic Russet.

F. Red-Skinned Varieties are included in Adaptation Tablestock Trial (Table 7)

Eleven red and purple lines were incorporated into the Adaptation Tablestock trial in 2008 (136 days). Six of the 11 were North Central Regional Trial entries: AND00272-1R, ATND98459-1RY, ND7132-1R, W5767-1R, Red Pontiac, and Red Norland. The results for the red-skinned lines are reported below.

G. Adaptation Trial (Tables 6 and 7)

The Adaptation Trial was divided into chip-processing and tablestock trials. The majority of the lines evaluated in the Adaptation Trial were tested in the Preliminary Trial the previous year. Three reference cultivars (Atlantic, Snowden and Pike), and 21 advanced breeding lines are reported in the chip-processing trial. The trial was harvested

after 136 days and the results are summarized in **Table 6**. The out-of-the-field chip-processing scores were slightly darker (on average by 0.5 points) in this trial, but this demonstrated the chip quality of two MSU lines, MSP368-1 and MSR160-2Y. Specific gravity values were average to above average for the Montcalm Research Farm (Atlantic was 1.091 and Snowden was 1.088). Boulder was the highest yielding line (111 cwt/a greater than Atlantic). Multiple new breeding lines combine scab resistance and chip-processing: MSN148-A, MSP292-7, MSQ089-1, MSQ289-5, MSR041-3, and MSR169-8Y. MSR036-5 also combines late blight resistance, scab resistance, and chip-processing: MSR160-2Y also has resistance to late blight and PVY, and moderate scab resistance.

In the tablestock trial, Red Pontiac, Red Norland, Onaway, and Yukon Gold were the check varieties and 20 advanced breeding lines are summarized in the table. The trial was harvested after 136 days and the results are summarized in **Table 7**. In general, the yield was good in this trial and internal defects were low. Five of the 20 lines have late blight resistance (including Jacqueline Lee) and six lines have moderate to strong scab resistance. Seven of the 20 lines also had early maturity. MSN251-1Y, ND7132-1R, Red Pontiac, and MSQ461-2PP were the highest yielding lines. Promising lines with attractive type for the tablestock market and strong foliar late blight resistance include MSM182-1, MSN251-1Y, MSQ086-3, MSQ134-5, and Jacqueline Lee. MSM182-1 also has PVY resistance. It is exciting to see lines with combined traits for type, scab, late blight, and PVY resistance, and earlier maturity classes in more advanced selections in the breeding program.

H. Preliminary Trial (Tables 8 and 9)

The Preliminary trial is the first replicated trial for evaluating new advanced selections from the MSU potato breeding program. The division of the trials was based upon pedigree assessment for chip-processing and tablestock utilization. The chip-processing Preliminary Trial had 21 advanced selections and three check varieties (Atlantic, Snowden, and Pike). The chip-processing trial that is summarized in **Table 8** was harvested after 126 days. Most lines chip-processed well from the field. Specific gravity values and yields were average to above average for the trial. The highest yielding line was FL1879, followed closely by MSQ029-1, Atlantic, MSS303-02, MSS428-2, and MSQ089-1. Ten of the lines (48%) were also classified to be resistant or moderately resistant to scab ($\leq$ 1.5 in 2008). Six lines have demonstrated late blight resistance. Some of these lines combine chip quality with scab and late blight resistance/moderate resistance (MSQ035-3, MSQ130-4, MSR102-3, and MSS165-2Y).

Table 9 summarizes the 24 tablestock lines evaluated in the Preliminary Trial (Onaway was used the check variety). This tablestock trial was harvested and evaluated after 126 days. Eleven of the 24 lines were late blight resistant (46%), and eight were scab resistant or moderately resistant. MSS582-1SPL, MSS176-1, MSS737-1Y, MSS476-05SPL, and MSQ131-A were the highest yielding lines. MSS176-1 and MSQ131-A are round-white lines with strong late blight resistance and marketable

maturities. MSS737-1Y is a yellow flesh line with moderate scab resistance and late blight resistance, and MSS411-3Y is another yellow with scab and late blight resistance. A few of the lines in this trial were considered for their unique color attributes for the specialty potato market: MSS582-1SPL, MSS476-05SPL, MSN111-4PP. The purple and red flesh-pigmented lines MSR226-1RR (Preliminary Chip Trial) and MSN11-4PP have also chipped out of the field.

I. Transgenic Trial (Table 10)

A field trial was conducted to continue to evaluate transgenic potato lines for agronomic performance. The results are summarized in **Table 10.** The trial this year (119 days) was used to evaluate a variety of different transgenic material. The trial is organized by parental clone and the trait of interest. The lines RB Spunta, SPA69.13, and E69.6 have the *RB* gene cloned from *S. bulbocastanum* which confers resistance to late blight. We have been using the RB Spunta line as a parent for transferring the 'native' late blight resistance gene to other varietal breeding material in the program. Four other lines express the *Bt-cry3A* gene which controls Colorado potato beetle (NO8.8, NO8.28 from Norwis; YG8.8 and YG8.12 from Yukon Gold; Atlantic Newleaf and Russet Burbank Newleaf were the control varieties). The majority of the lines were selections from two crosses to combine late blight resistance with the *Bt-cry1Ia1* gene (from SpuntaG2) for resistance to potato tuberworm (*Phthorimaea operculella*). There were six selections from the MSR605 family (SpuntaG2 x MSJ461-1) and two from the MSR606 family (SpuntaG2 x Jacqueline Lee). These selections had a range of performance for yield, specific gravity, and maturity. Three of the most promising lines are being put into tissue culture and going through virus eradication. An enhanced *Bt-cry1*, also for lepidopteran control, was evaluated in SP15.5 and SP15.8. Avidin-expressing lines have potential insecticidal activity against multiple insert orders, including Coleoptera (Colorado potato beetle) and Lepidoptera (potato tuberworm). The avidin lines were E75.7, E75.26, ND75.3, and ND75.6. The ND75.3 and ND75.6 combine avidin with natural host plant resistance for Colorado potato beetle. The ONAGP.1 and ONAGP.2 lines are transformed with the ADP-glucose pyrophosphorylase gene (AGPase) for increased starch content to increase specific gravity. To address the nutritional improvement of potatoes, two different proteins in the Vitamin E (α-tocopherol) pathway were expressed in SPHPPD.13, SPHPPD.15, and SPHPT.3.

J. Potato Scab Evaluation (Table 11)

Each year, a replicated field trial at the MSU Soils Farm (E. Lansing, MI) is conducted to assess resistance to common scab. We are using a scale of a 0-5 ranking based upon a combined score for scab coverage and lesion severity. Usually examining one year's data does not indicate which varieties are resistant but it should begin to identify ones that can be classified as susceptible to scab. Our goal is to evaluate important advanced selections and varieties in the study at least three years to obtain a valid estimate of the level of resistance in each line. **Table 11** categorizes many of the varieties and advanced selections tested in 2008 at the MSU Soils Farm Scab Nursery over a three-year period. The varieties and breeding lines are placed into six arbitrary

categories based upon scab infection level and lesion severity. A rating of 0 indicates zero infection. A score of 1.0 indicates a trace amount of infection. A moderate resistance (1.2 – 1.8) correlates with <10% infection. Scores of 4.0 or greater are found on lines with >50% infection and severe pitted lesions.

The check varieties Russet Burbank, Russet Norkotah, Red Norland, NorValley, Yukon Gold, Red Pontiac, Pike, Atlantic and Snowden can be used as references (bolded in **Table 11**). In general, most russet lines were scab resistant. This year's results continue indicate that we have been able to breed numerous lines for the chip-processing and tablestock markets with resistance to scab. A total of 65 lines, of the 188 tested, had a scab rating of 1.4 (better than or equivalent to Pike) or lower in 2008. Most notable scab resistant MSU lines are MSA8254-2BRUS, MSH228-6, MSJ036-A, MSJ126-9Y, MSK061-4, MSK409-1, MSM171-A, MSM288-2Y, MSN073-2, MSN170-A, MSN238-A, and MSP516-A; as well as some earlier generation lines MSQ070-1, MSQ089-1, MSQ289-5, MSQ440-2, MSR036-5, MSR061-1, MSR102-3, and MSR161-2. The greater number of MSU lines in the resistant and moderately resistant categories indicates we are making progress in breeding more scab resistant lines for the chip-processing and tablestock markets. There are also an increasing number of scab resistant lines that also have late blight resistance and PVY resistance. We also continue to conduct early generation scab screening on selections in the breeding program beginning after one year. Of the 278 early generation selections that were evaluated, 109 were resistant (scab rating of ≤ 1.0). Scab results from the disease nursery are also found in the Trial Summaries (**Tables 2-10**).

K. Late Blight Trial (Table 12)

In 2008, the late blight trial was conducted at the Muck Soils Research Farm, Bath, MI. This year, 138 entries were planted for evaluation in replicated plots. The field was planted on June 5 and inoculated July 30 with a combination of isolates (see **Table 12**). Fourty-four of the 138 lines were highly resistant to late blight. The late blight resistance of the MSU lines is derived from Tollocan (a Mexican variety), B0718-3 (USDA clone), AWN96518-2 (USDA clone), Stirling (Scottish variety), Torridon (Scottish variety), NY121 (Cornell University clone), Jacqueline Lee (MSU variety), and the wild potato species *S. microdontum* and *S. berthaultii*. These resistant progeny indicate that we can continue to breed for resistance using this group of resistant clones. We find these late blight resistant lines valuable because many of them also have marketable maturity and some are more tolerant to scab as compared to the first generation of late blight resistant lines. Also, some of these lines have chip-processing quality. In addition to the replicated late blight variety trials, we continue to do larger scale evaluations in the block tests, early generation screening, and evaluation of transgenic lines and breeding lines with wild germplasm pedigrees. Out of the 166 lines with late blight resistant parents selected for the early generation evaluation, 79 were resistant to moderately resistant (data not shown). The MSU Muck Soils Research Farm continues to be an excellent site for evaluating foliar late blight resistance in inoculated field trials. Tuber late blight resistance is currently being evaluated on many of the selections with foliar late blight resistance.

L. Blackspot Bruise Susceptibility (Table 13)

Evaluations of advanced seedlings and new varieties for their susceptibility to blackspot bruising are also important in the variety evaluation program. Based upon the results collected over the past years, the non-bruised check sample has been removed from our bruise assessment. A composite bruise sample of each line in the trials consisted of 25 tubers (a composite of 4 replications) from each line, collected at the time of grading. The 25 tuber sample was held in 50°F (10°C) storage overnight and then was placed in a hexagon plywood drum and tumbled 10 times to provide a simulated bruise. The samples were peeled in an abrasive peeler in October and individual tubers were assessed for the number of blackspot bruises on each potato. These data are shown in **Table 13**. The bruise data are represented in two ways: percentage of bruise free potatoes and average number of bruises per tuber. A high percentage of bruise-free potatoes is the desired goal; however, the numbers of blackspot bruises per potato is also important. Cultivars which show blackspot incidence greater than Atlantic are approaching the bruise-susceptible rating. In addition, the data is grouped by trial, since the bruise levels can vary between trials. Conducting the simulated bruise on 50°F (10°C) tubers has helped to standardize the bruise testing. We are observing less variation between trials since we standardized the handling of the bruise sample.

In 2008, the bruise levels were comparable to previous years. The most bruise resistant MSU breeding lines this year from the advanced trials were MSM246-B, MSL268-D, MSN105-1, MSJ126-9Y, MSR061-1, MSK061-4, MSJ316-A, MSM171-A, MSP292-7, MSM037-3, MSL292-A, MSM288-2Y, MSQ086-3, and MSL228-1SPL. The most susceptible lines from the advanced trials were Atlantic, Snowden, MegaChip, W2133-1, MSN148-A, and MSQ070-1. Of the earlier generation breeding lines (Preliminary Trial), the most bruise resistant were MSQ130-4, MSQ029-1, MSS199-2, MSQ035-3, and MSQ131-A. The most bruise resistant russet entries were Russet Norkotah, W2253-5RUS, CO98067-7RUS, and CO99053-4RUS; the most susceptible were A00727-1, AC99375-1RUS, W2683-2RUS, and Canela Russet. The most bruise resistant entries in the US Potato Board/Snack Food Association Trial were NY138, CO95051-7W, and CO96141-4W. NY139, Snowden, and W2324-1were the most bruise susceptible in this trial.

Table 1

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

DATE OF HARVEST TRIAL: EARLY HARVEST
MONTCALM RESEARCH FARM
May 8 to August 11, 2008 (96 days)

	CWT/A		PERCENT OF TOTAL[1]						CHIP	PERCENT (%) TUBER QUALITY[3]				3-YR AVG US#1
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	CWT/A
Atlantic	**258**	**290**	**89**	**10**	**89**	**0**	**1**	**1.089**	**1.0**	**5**	**0**	**0**	**0**	**258**
FL1879	247	257	96	3	91	5	1	1.072	1.0	0	0	0	0	300
MSN105-1[LBMR]	241	279	86	12	86	0	2	1.076	1.0	0	0	0	0	240
MSL268-D[LBR-PVYR]	232	284	82	16	80	1	3	1.073	1.0	5	0	0	0	-
MSM070-1	213	241	89	9	85	4	2	1.070	1.0	3	0	0	0	-
MSM171-A[LBR]	191	203	94	3	73	21	3	1.059	1.0	8	0	0	3	261
Snowden	**189**	**229**	**83**	**17**	**82**	**1**	**0**	**1.079**	**1.0**	**0**	**0**	**0**	**0**	**229**
MSN170-A	188	210	89	9	89	0	1	1.079	1.0	0	0	0	0	-
Pike	**159**	**183**	**87**	**13**	**86**	**1**	**0**	**1.079**	**1.0**	**0**	**0**	**0**	**0**	**174**
MSM170-2	158	223	71	29	70	1	0	1.068	1.0	0	0	0	0	-
MSP459-5	153	200	76	23	76	0	1	1.081	1.0	0	0	0	0	-
MSM246-B	126	139	91	8	90	1	1	1.078	1.0	3	0	0	0	-
MEAN	196	228						1.075						* Two-Year Average
$LSD_{0.05}$	43	44						0.003						

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

Table 2

DATE OF HARVEST TRIAL: LATE HARVEST
MONTCALM RESEARCH FARM
May 8 to September 24, 2008 (140 days)

	CWT/A		PERCENT OF TOTAL[1]							PERCENT (%) TUBER QUALITY[3]						3-YR AVG US#1
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	CHIP SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]	CWT/A
FL1879	425	445	96	3	70	26	1	1.080	1.5	23	18	0	0	2.5	3.0	378
Atlantic	**368**	**422**	**87**	**11**	**84**	**3**	**2**	**1.094**	**1.5**	**3**	**0**	**0**	**0**	**2.4**	**2.8**	**320**
Snowden	**359**	**414**	**87**	**11**	**83**	**3**	**3**	**1.088**	**1.5**	**0**	**43**	**0**	**0**	**2.6**	**4.0**	**325**
MSN105-1[LBMR]	348	431	81	15	74	7	4	1.082	1.5	0	10	0	0	1.9	2.8	293
MSL268-D[LBR,PVYR]	347	437	79	16	75	4	5	1.078	1.5	3	10	0	0	1.1	3.0	-
MSN170-A	323	366	88	10	86	2	1	1.083	1.5	3	0	0	0	1.0	2.3	-
MSM171-A[LBR]	308	343	90	4	53	37	6	1.062	-	28	5	0	0	1.7	2.5	299
Pike	**265**	**314**	**84**	**15**	**82**	**2**	**0**	**1.088**	**1.5**	**0**	**15**	**0**	**0**	**1.4**	**3.3**	**230**
MSP459-5[LBMR]	256	348	74	24	73	0	2	1.084	1.5	0	5	0	0	1.5	2.3	-
MSM246-B	236	262	90	9	79	11	1	1.085	1.5	3	10	0	0	2.5	3.3	-
MEAN	323	378						1.082							* Two-Year Average	
$LSD_{0.05}$	52	53						0.004						0.9	0.7	

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 3

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

ADVANCED TRIAL
MONTCALM RESEARCH FARM
May 8 to September 24, 2008 (140 days)

	CWT/A		PERCENT OF TOTAL[1]						CHIP	PERCENT (%) TUBER QUALITY[3]						3-YR AVG US#1
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]	CWT/A
MegaChip	436	469	93	5	80	13	2	1.095	1.0	0	40	0	0	1.5	3.8	-
Kalkaska	433	489	89	11	82	6	1	1.084	1.0	8	8	0	3	1.1	3.3	375*
Beacon Chipper	426	445	96	4	74	22	0	1.085	1.0	0	7	0	0	1.0	2.8	347
FL1879	415	434	96	3	71	25	1	1.082	1.0	18	15	3	0	2.5	2.8	-
MSI005-20Y	411	455	90	8	83	7	1	1.079	1.0	0	10	3	0	2.2	3.3	-
MSQ176-5[LBR]	408	434	94	5	62	32	1	1.070	1.0	8	10	0	0	2.0	3.0	-
MSK061-4	364	405	90	7	78	12	3	1.088	1.0	0	60	3	0	1.0	3.5	266
Snowden	**360**	**415**	**87**	**13**	**83**	**3**	**1**	**1.088**	**1.0**	**15**	**33**	**0**	**3**	**2.6**	**3.8**	-
MSQ070-1[LBR]	344	411	84	16	82	2	0	1.095	1.0	0	13	20	0	1.0	4.3	-
FL2053	331	400	83	8	81	2	9	1.096	1.0	3	5	0	0	2.0	2.5	304
MSR061-1[LBMR,PVYR]	299	388	77	23	77	0	0	1.087	1.0	0	18	0	0	1.3	3.0	-
MSJ126-9Y	279	318	88	12	82	6	0	1.078	1.0	3	18	0	0	1.1	2.8	261
MSJ147-1	271	342	79	21	79	0	0	1.092	1.0	0	3	0	0	1.4	3.8	214
MSH228-6	267	295	91	9	87	4	1	1.085	1.0	8	18	0	0	1.0	3.8	272
MSN191-2Y	265	318	83	16	82	2	0	1.097	1.0	0	3	0	0	2.5	2.8	253*
MSK409-1	262	318	82	9	72	11	9	1.089	1.0	0	33	3	0	1.0	3.0	222
Pike	**255**	**305**	**84**	**16**	**82**	**2**	**0**	**1.087**	**1.0**	**0**	**30**	**0**	**0**	**1.4**	**3.5**	-
MSN238-A	230	335	69	31	67	2	0	1.084	1.0	0	18	0	0	2.1	3.3	-
MEAN	336	387						1.087							* Two-Year Average	
$LSD_{0.05}$	70	67						0.004						0.9	0.8	

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 4

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

ROUND WHITE TRIAL (North Central Regional Entries)
MONTCALM RESEARCH FARM
May 8 to September 11, 2008 (127 days)

										PERCENT (%)						3-YR AVG
	CWT/A		PERCENT OF TOTAL[1]						CHIP	TUBER QUALITY[3]						US#1
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]	CWT/A
MSM171-A[LBR]	336	362	93	6	78	15	1	1.067	-	0	8	0	0	1.7	2.0	-
Atlantic	**324**	**369**	**88**	**8**	**76**	**11**	**4**	**1.089**	**1.5**	**15**	**5**	**0**	**0**	**2.4**	**2.8**	**312**
MSI005-20Y	307	368	83	15	80	3	1	1.080	-	0	3	0	0	2.2	2.8	325
Snowden	**297**	**351**	**85**	**13**	**76**	**8**	**2**	**1.091**	**1.0**	**13**	**38**	**0**	**0**	**2.6**	**4.5**	**350**
Norvalley	**290**	**355**	**82**	**16**	**77**	**5**	**2**	**1.077**	**1.0**	**0**	**5**	**0**	**0**	**-**	**2.0**	**299**
MSJ461-1[LBR]	282	375	75	25	74	1	0	1.079	1.0	0	0	0	0	2.1	4.0	-
MSJ316-A	277	321	86	13	83	3	0	1.083	1.5	3	0	0	0	1.6	4.5	296
W2310-3	234	275	85	14	84	1	1	1.092	1.0	0	0	0	0	1.9	2.8	236
ND8307C-3	222	303	73	27	72	2	0	1.087	1.5	0	0	0	0	1.4	4.3	-
W2133-1	179	268	67	30	65	2	3	1.087	1.0	0	3	0	0	2.1	2.3	278
ND8304-2	121	187	65	35	65	0	0	1.073	1.0	0	3	0	0	3.6	1.5	-
MEAN	261	321						1.082								
$LSD_{0.05}$	82	82						0.003						0.9	0.8	

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

All the lines in the Round White Trial in 2008 were North Central Regional Trial entries.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 5

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

RUSSET TRIAL (+NCR ENTRIES) 2008
MONTCALM RESEARCH FARM
May 8 to September 17, 2008 (133 days)

	CWT/A		PERCENT OF TOTAL[1]						PERCENT (%) TUBER QUALITY[2]						3-YR AVG US#1
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB[3]	MAT[4]	CWT/A
A95109-1	469	508	92	5	65	27	2	1.079	13	58	0	0	1.0	3.8	329
MSA8254-2BRUS	442	522	85	10	62	23	5	1.079	40	3	0	0	1.0	4.0	-
W5716-1RUS	385	471	82	14	70	11	4	1.082	3	5	0	0	1.3	4.0	351*
Silverton Russet	382	412	93	7	68	25	1	1.073	0	3	0	0	0.8	3.3	-
AC99375-1RUS	369	523	70	18	61	9	11	1.092	40	13	3	0	1.0	4.0	-
CO99053-3RUS	351	408	86	9	53	34	5	1.080	25	8	0	0	1.5	3.5	-
W2683-2RUS[NCR]	344	464	74	19	66	8	7	1.079	20	0	0	0	0.8	4.0	294
W7012-1RUS	330	422	78	16	64	14	6	1.082	3	15	0	0	1.0	3.3	-
W5716-1RUS[NCR]	320	405	79	13	60	19	8	1.084	10	10	5	0	1.3	3.3	-
CO95172-3RUS	310	398	78	20	73	5	2	1.086	0	5	0	0	1.3	3.5	-
AOND95292-3RUS[NCR]	309	394	78	17	71	7	4	1.082	35	10	0	0	2.6	3.5	-
W3328-1RUS	304	398	76	17	66	10	7	1.074	0	8	0	0	1.2	3.0	-
Canela Russet	284	344	82	16	67	15	2	1.087	8	13	0	0	1.4	2.3	261
W3666-2RUS	277	375	74	23	64	10	3	1.076	0	25	0	0	1.3	2.5	-
CORN #3	268	361	74	24	71	3	2	1.076	15	10	0	0	2.0	3.0	278
W2253-5RUS	265	305	87	9	73	14	5	1.071	8	43	0	0	1.8	3.8	-
W8206-1RUS	258	315	82	13	62	20	5	1.079	0	40	0	0	1.5	3.3	-
CO99100-1RUS	254	310	82	13	72	10	5	1.072	0	15	0	0	1.3	1.3	-
CORN #8	226	304	74	23	67	7	3	1.073	13	13	0	0	2.1	2.0	203
CO99053-4RUS	225	326	69	24	64	5	7	1.073	0	10	0	0	1.4	2.3	-
AOTX95265-2ARu	212	303	70	28	61	9	2	1.072	15	8	0	0	2.3	2.2	-
A00727-1	210	322	65	33	62	3	2	1.082	0	13	0	0	2.4	2.8	-
AOTX95265-4Ru	206	325	63	30	57	6	6	1.070	10	10	0	0	2.3	2.0	-
AOTX95265-3Ru	201	323	62	30	55	8	8	1.070	18	10	0	0	2.0	2.3	-
AC96052-1RUS	192	294	65	35	65	0	0	1.080	0	13	0	0	1.3	3.3	-
A0008-1TE	191	293	65	30	63	2	5	1.073	0	13	0	0	-	1.0	-
Russet Burbank[NCR]	**190**	**351**	**54**	**15**	**48**	**6**	**31**	**1.081**	**15**	**3**	**0**	**0**	**1.3**	**3.0**	**209**
CO98067-7RUS	189	303	63	32	59	4	6	1.065	0	25	0	0	1.8	1.8	-
W6234-4RUS	186	286	65	28	54	11	7	1.079	5	13	0	0	2.5	2.8	-
Russet Norkotah[NCR]	**167**	**273**	**61**	**36**	**59**	**2**	**3**	**1.068**	**3**	**10**	**0**	**0**	**-**	**1.0**	**162**
CO98368-2RUS	163	282	58	37	55	3	5	1.076	0	3	0	0	2.0	1.0	-
A98298-1	141	231	61	30	57	4	9	1.068	0	28	0	0	1.0	2.0	-
W6968-2RUS	136	210	65	34	57	7	2	1.074	0	5	0	0	2.8	1.8	-
MEAN	265	356						1.077							* Two-Year Average
$LSD_{0.05}$	64	67						0.004					0.9	0.7	

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[NCR] North Central Regional Entry

[1]SIZE: B: < 4 oz.; A: 4-10 oz.; OV: > 10 oz.; PO: Pickouts.

[2]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[3]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[4]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 6

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

ADAPTATION TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 8 to September 19, 2008 (136 days)

	CWT/A		PERCENT OF TOTAL[1]						CHIP	PERCENT (%) TUBER QUALITY[3]					
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]
Boulder	467	476	98	2	38	60	0	1.080	2.0	5	0	0	0	1.6	3.5
MSQ432-2PP	464	490	95	4	68	27	2	1.075	2.5	0	0	0	0	1.5	3.5
MSQ089-1	441	503	88	12	81	6	1	1.080	1.5	0	3	3	0	1.4	3.8
MSM037-3	427	461	92	7	87	6	1	1.076	1.5	3	8	0	0	1.8	3.0
FL1879	381	401	95	4	77	18	1	1.080	1.5	10	3	0	0	2.5	2.8
NY139	364	395	92	8	89	3	0	1.086	1.5	0	3	0	0	1.5	2.8
Atlantic	**356**	**402**	**88**	**10**	**81**	**8**	**1**	**1.091**	**1.5**	**5**	**0**	**0**	**0**	**2.4**	**3.0**
Snowden	**343**	**377**	**91**	**9**	**84**	**7**	**0**	**1.088**	**1.5**	**3**	**35**	**0**	**0**	**2.6**	**3.5**
MSQ279-1	334	362	92	5	62	30	2	1.074	2.0	8	3	0	0	1.5	3.8
MSR036-5[LBR]	334	373	90	10	77	13	0	1.086	2.0	8	10	0	0	1.5	4.5
MSP368-1	333	361	92	8	80	12	0	1.091	1.0	0	3	5	0	-	3.3
MSN148-A	306	344	89	11	82	7	0	1.095	1.5	3	5	0	0	1.4	3.3
W2717-5	296	345	86	11	79	7	3	1.092	1.5	5	23	5	8	2.4	2.5
MSL292-A	291	339	86	14	83	3	1	1.084	1.5	0	0	0	0	2.8	2.8
Pike	**256**	**298**	**86**	**14**	**85**	**1**	**0**	**1.086**	**1.5**	**0**	**5**	**0**	**0**	**1.4**	**3.5**
CO95051-7W	255	293	87	12	87	0	1	1.090	1.5	0	3	0	0	1.3	4.0
MSQ289-5	242	275	88	8	79	9	4	1.091	1.5	0	5	0	0	1.0	2.5
MSQ558-2RR	223	314	71	29	71	0	0	1.076	1.5	0	0	0	0	1.6	1.0
MSQ492-2[LBR]	221	274	81	19	76	5	1	1.078	1.5	0	0	25	0	2.2	4.5
W4013-1	211	277	76	22	74	3	2	1.086	1.5	0	0	0	0	2.6	2.3
MSP292-7	197	261	76	24	75	1	0	1.087	1.5	0	0	0	0	1.3	2.0
MSR041-3	194	287	68	32	68	0	0	1.079	1.5	0	0	3	0	1.0	2.3
MSR160-2Y[LBR,PVYR]	171	360	48	52	47	0	0	1.094	1.0	0	5	0	0	1.8	2.8
MSR169-8Y	163	210	78	22	73	4	1	1.084	1.5	0	0	0	0	1.0	3.8
MEAN	303	353						1.085							
$LSD_{0.05}$	75	77						0.004						0.9	0.8

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 7

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

ADAPTATION TRIAL, TABLESTOCK LINES (+NCR ENTRIES)
MONTCALM RESEARCH FARM
May 8 to September 19, 2008 (136 days)

	CWT/A		PERCENT OF TOTAL[1]						PERCENT (%) TUBER QUALITY[2]					
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB[3]	MAT[4]
MSN251-1Y[LBR]	470	529	89	11	80	9	1	1.086	48	0	3	0	1.8	3.7
ND7132-1R[NCR]	427	456	94	5	82	12	1	1.070	3	3	0	0	2.0	2.8
Red Pontiac[NCR]	**427**	**470**	**91**	**5**	**70**	**21**	**4**	**1.066**	**13**	**0**	**0**	**0**	**-**	**3.5**
MSQ461-2PP	414	428	97	3	91	6	0	1.084	0	0	0	3	1.5	3.0
MSL228-1SPL	381	409	93	4	82	11	3	1.084	0	8	0	0	1.6	2.8
AND00272-1R[NCR]	372	443	84	15	82	1	1	1.069	0	3	0	0	1.4	3.0
Eva[PVYR]	367	402	91	7	82	9	2	1.075	3	5	0	0	2.4	3.3
Reba	367	379	97	3	81	16	0	1.075	3	0	0	3	2.0	2.8
MSM182-1[LBR,PVYR]	364	410	89	11	84	5	0	1.075	5	10	3	0	2.1	3.0
W5767-1R[NCR]	362	392	92	6	72	20	2	1.077	8	0	3	3	1.7	3.0
MSQ086-3[LBR]	353	388	91	9	87	4	0	1.083	0	5	0	0	1.5	3.5
MSM288-2Y	339	415	82	15	79	3	3	1.077	0	0	0	0	2.9	2.8
MSR157-1Y	338	368	92	8	86	6	1	1.082	10	8	0	0	1.5	2.8
Red Norland[NCR]	**338**	**377**	**90**	**9**	**85**	**4**	**2**	**1.062**	**3**	**0**	**0**	**0**	**1.0**	**1.5**
ATND98459-1RY[NCR]	317	421	75	24	75	0	1	1.074	0	0	0	0	2.8	2.3
Onaway	**304**	**343**	**89**	**8**	**80**	**9**	**3**	**1.068**	**0**	**13**	**0**	**0**	**1.8**	**1.8**
Michigan Purple	304	340	89	6	69	20	5	1.072	0	0	0	0	1.8	1.3
MSQ134-5[LBR]	298	355	84	16	82	2	0	1.079	0	0	0	0	1.9	3.8
Jacqueline Lee[LBR]	293	504	58	41	57	1	1	1.087	0	8	0	0	3.3	2.3
CO98012-5R	270	390	69	30	69	0	0	1.071	0	0	0	0	2.1	2.5
Yukon Gold	**255**	**282**	**90**	**6**	**81**	**9**	**4**	**1.073**	**5**	**3**	**5**	**0**	**3.0**	**1.0**
Rio Colorado	233	322	72	27	72	0	1	1.069	0	0	0	0	2.8	1.3
MSQ425-4Y	228	296	77	23	76	0	0	1.072	0	0	0	0	1.9	1.5
MSN215-2P	174	239	73	25	71	2	2	1.075	0	0	0	0	1.0	1.0
MEAN	333	390						1.075						
$LSD_{0.05}$	69	69						0.004					0.9	0.9

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[NCR] North Central Regional Entry

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

[3]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[4]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

PRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 8 to September 10, 2008 (126 days)

	CWT/A		PERCENT OF TOTAL[1]						CHIP	PERCENT (%) TUBER QUALITY[3]					
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]
FL1879	393	408	96	3	72	24	1	1.084	1.0	25	20	0	0	2.5	2.5
MSQ029-1[LBR]	363	393	92	7	77	16	1	1.087	1.5/2.0	40	0	0	0	2.0	5.0
Atlantic	**359**	**396**	**91**	**7**	**83**	**8**	**2**	**1.097**	**1.5**	**0**	**5**	**0**	**0**	**2.4**	**3.0**
MSS303-02	344	387	89	10	87	2	1	1.095	1.0	0	10	20	0	1.5	4.0
MSS428-2	329	373	88	11	81	7	1	1.085	1.0	20	15	0	0	1.7	3.0
MSQ089-1	305	358	85	11	74	11	4	1.076	1.5	0	0	0	0	1.9	3.0
Snowden	**300**	**342**	**88**	**10**	**83**	**5**	**3**	**1.090**	**1.0**	**0**	**20**	**0**	**0**	**2.6**	**3.0**
MSR161-2	299	334	90	9	87	3	2	1.090	1.0	0	0	0	0	1.0	3.0
MSS514-1PP	282	340	83	16	78	5	1	1.063	2.5	0	0	0	0	0.8	3.0
MSS026-2Y	277	305	91	9	76	14	1	1.098	1.0	0	5	5	0	2.2	3.0
MSS165-2Y[LBR]	266	356	75	24	74	1	1	1.089	1.0!	0	0	0	0	1.3	3.0
MSS927-1	266	308	86	12	79	7	2	1.080	1.0	0	0	0	0	2.0	2.0
MSR058-2	263	345	76	22	74	3	2	1.084	1.5	0	5	0	0	1.3	4.0
MSQ035-3[LBR]	263	307	86	13	82	3	1	1.078	1.0	5	0	0	0	1.5	4.0
MSR102-3[LBR]	252	285	89	10	73	16	1	1.089	1.5	5	0	0	0	1.1	5.0
MSS306-4Y	235	281	83	12	76	7	5	1.081	1.0	0	0	0	0	1.5	1.5
MSS108-1[LBR]	223	268	83	16	62	21	1	1.072	-	0	5	20	0	3.0	3.0
MSQ130-4[LBR]	210	236	89	11	80	8	0	1.079	1.0	0	0	0	0	1.5	3.0
MSS199-2	207	248	83	16	82	1	0	1.080	1.0	0	0	0	0	1.3	2.0
MSM060-3	204	273	75	24	75	0	1	1.099	1.5	0	10	0	0	1.5	2.0
MSR128-4Y	184	242	76	21	75	1	3	1.091	1.0	0	0	0	0	2.0	4.5
MSR226-1RR	181	279	65	32	64	1	3	1.073	1.0!	0	0	0	0	2.0	1.0
Pike	**181**	**212**	**85**	**15**	**83**	**2**	**0**	**1.087**	**1.0**	**0**	**0**	**0**	**0**	**1.4**	**2.5**
MSS915-1	114	233	49	51	49	0	0	1.072	1.5	0	0	0	0	2.5	2.0
MEAN	263	313						1.084							
$LSD_{0.05}$	62	58						0.008						0.9	1.0

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 20 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 9

PRELIMINARY TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 8 to September 10, 2008 (126 days)

	CWT/A		PERCENT OF TOTAL[1]						CHIP	PERCENT (%) TUBER QUALITY[3]					
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE[2]	HH	VD	IBS	BC	SCAB[4]	MAT[5]
MSS582-1SPL	387	414	94	3	61	33	3	1.072	-	5	0	0	0	2.4	4.0
MSS176-1[LBR]	377	390	97	2	72	24	1	1.085	2.0	25	0	20	0	1.0	4.0
MSS737-1Y[LBR]	344	400	86	10	78	8	4	1.078	1.5	0	0	0	0	1.7	3.5
MSS476-05SPL	313	345	91	8	87	4	1	1.076	1.5	0	0	0	0	2.0	3.0
MSQ131-A[LBR]	295	301	98	2	61	38	0	1.069	1.0	0	0	0	0	2.0	3.5
MSS483-1[LBR]	294	337	87	13	81	6	0	1.072	2.0	0	0	0	0	2.4	3.5
MSS097-3[LBR]	292	315	93	7	67	26	0	1.073	1.0	0	5	0	0	2.3	2.5
Onaway	**265**	**302**	**88**	**9**	**78**	**10**	**3**	**1.068**	**3.5**	**0**	**0**	**0**	**0**	**1.8**	**2.5**
Reba	262	274	96	4	85	11	0	1.077	1.0	0	0	0	0	2.0	2.5
MSS206-2[LBR]	250	270	92	2	72	20	5	1.071	2.0	0	10	0	0	1.8	4.0
MSS526-1	242	266	91	7	80	11	2	1.065	3.5	0	5	0	0	1.8	1.5
MSS737-5Y	234	259	90	9	81	10	1	1.070	1.5	0	0	0	0	2.0	3.0
MSR297-A	230	255	90	10	87	3	0	1.072	1.0	0	0	0	0	1.8	2.5
MSR176-4P	211	255	83	15	83	0	2	1.079	-	5	5	5	0	1.3	1.5
MSS917-3[LBR]	197	259	76	24	74	2	0	1.089	1.0	0	10	0	0	2.2	3.0
MSS411-3Y[LBR]	194	292	66	34	66	0	0	1.088	1.5	0	0	0	0	1.0	3.5
MSR159-02[LBR]	194	226	86	13	76	10	1	1.085	1.5	5	0	0	0	1.5	4.0
MSN111-4PP	194	253	77	22	76	1	2	1.073	1.0	0	0	0	0	2.9	3.0
MSS544-1R	173	259	67	33	67	0	0	1.067	-	0	0	0	0	1.0	1.0
MSS442-2[LBR]	167	191	87	9	81	6	4	1.072	1.5	0	0	5	0	3.0	1.5
MSS164-6[LBR]	154	209	74	25	74	0	1	1.086	2.5	0	0	0	0	1.0	2.5
MSR218-AR	154	203	76	12	68	8	12	1.064	1.5	0	0	0	0	1.0	1.0
MSR219-2R	133	149	89	11	65	25	0	1.058	-	0	5	0	0	2.3	1.0
ND7994-1RUS	115	202	57	35	57	0	8	1.078	-	0	0	0	0	0.3	2.5
MSR241-4RY	100	184	54	45	54	0	1	1.073	-	0	0	0	0	2.3	1.0
MEAN	231	272						1.074							
$LSD_{0.05}$	111	116						0.006						0.9	1.4

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

[3]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 20 Oversize and/or A-size tubers cut.

[4]SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

[5]MATURITY RATING: August 28, 2008; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 10

TRANSGENIC TRIAL
MONTCALM RESEARCH FARM
May 8 to September 3, 2008 (119 days)

	CWT/A		PERCENT OF TOTAL[1]						PERCENT (%) TUBER QUALITY[2]				Parental	
LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	Clone	Trait
E69.6	183	271	68	32	66	2	1	1.070	0	0	0	0	MSE149-5Y	RB-Late Blight
E75.26	155	234	66	34	66	0	0	1.076	0	0	0	0	MSE149-5Y	Avidin
E75.7	153	238	64	35	64	0	1	1.066	0	0	0	0	MSE149-5Y	Avidin
ND75.6	251	282	89	9	81	7	3	1.091	0	0	0	0	ND5873-15	Avidin
ND75.3	209	248	84	11	74	11	5	1.084	0	10	10	0	ND5873-15	Avidin
Norwis	**355**	**378**	**94**	**4**	**84**	**10**	**2**	**1.071**	**0**	**25**	**0**	**5**	**Norwis**	**N/A**
NO8.28	293	315	93	7	88	5	0	1.067	0	0	0	0	Norwis	Bt-cry3A
NO8.8	285	308	93	7	89	3	0	1.072	0	5	0	0	Norwis	Bt-cry3A
ONAGP.2	173	231	75	24	75	0	2	1.068	0	0	0	0	Onaway	AGPase
ONAGP.1	114	169	67	21	67	0	11	1.068	0	10	0	0	Onaway	AGPase
ATL Newleaf	197	234	84	16	82	2	0	1.087	0	0	0	0	Atlantic	Bt-cry3A
RB Newleaf	55	149	37	39	33	3	25	1.076	10	10	0	0	Russet Burbank	Bt-cry3A
Spunta	**338**	**410**	**83**	**6**	**62**	**21**	**11**	**1.060**	**5**	**3**	**0**	**5**	**Spunta**	**N/A**
SpuntaG2	327	373	88	6	72	16	6	1.062	5	23	3	5	Spunta	Bt-cry1Ia1
SP15.5	335	406	82	8	75	7	9	1.065	0	15	0	0	Spunta	Bt-cry1
SP15.8	250	322	78	13	66	12	10	1.063	15	5	0	0	Spunta	Bt-cry1
RB Spunta CSPAG.13	328	391	84	9	70	14	7	1.063	10	10	0	0	Spunta	RB-Late Blight
SPA69.13	262	316	83	13	71	12	4	1.065	0	10	0	0	Spunta	RB-Late Blight
SPHPPD.15	290	365	79	11	72	7	10	1.064	0	15	0	10	Spunta	Vit. E
SPHPPD.13	282	365	77	10	69	8	13	1.062	0	15	10	0	Spunta	Vit. E
SPHPT.3	280	352	79	12	72	8	8	1.060	0	5	0	0	Spunta	Vit. E
Yukon Gold	**218**	**242**	**90**	**5**	**75**	**15**	**5**	**1.068**	**5**	**5**	**0**	**0**	**Yukon Gold**	**N/A**
YG8.8	216	246	88	12	85	2	0	1.078	5	15	0	0	Yukon Gold	Bt-cry3A
YG8.12	186	226	82	17	81	1	0	1.077	0	10	0	0	Yukon Gold	Bt-cry3A
R605-8^{LBR}	311	351	89	10	79	9	2	1.068	3	0	0	0		Bt-cry1Ia1
R605-17^{LBR}	243	310	78	15	75	3	6	1.077	0	3	3	0		Bt-cry1Ia1
R606-7	242	323	75	19	72	3	6	1.072	0	8	0	0		Bt-cry1Ia1
R605-7^{LBR}	235	260	90	10	80	10	0	1.072	5	0	33	0		Bt-cry1Ia1
R605-10	233	280	83	17	81	2	0	1.078	0	0	0	0		Bt-cry1Ia1
R605-2	217	305	71	15	70	1	14	1.063	0	0	0	3		Bt-cry1Ia1
R606-2^{LBR}	201	263	76	23	74	3	1	1.063	3	0	0	3		Bt-cry1Ia1
R605-5	149	243	61	37	61	0	1	1.070	0	3	0	0		Bt-cry1Ia1

[1]SIZE: B: < 2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.

[2]QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

Table 11

MICHIGAN STATE UNIVERSITY

POTATO BREEDING and GENETICS

2006-2008 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

LINE	*3-YR** *AVG.*	2008 RATING	2008 WORST	2008 N	2007 RATING	2007 WORST	2007 N	2006 RATING	2006 WORST	2006 N
Sorted by ascending 2008 Rating;										
MSA8254-2BRUS	***0.2***	0.0	0.0	3	0.5	1	4	0.0	0	4
MSS037-2	-	0.0	0.0	1	-	-	-	-	-	-
ND7994-1	-	0.3	1.0	3	-	-	-	-	-	-
W2683-2RUS[NCR]	***0.5***	0.8	1.0	8	0.5	1	8	0.3	1	4
MSS514-1PP	-	0.8	1.0	4	-	-	-	-	-	-
Silverton Russet	-	0.8	1.0	4	-	-	-	-	-	-
A95109-1	***1.1***	1.0	2.0	4	0.7	1	3	1.7	3	3
MSQ070-1[LBR]	***0.9****	1.0	1.0	4	0.8	1	4	-	-	-
W2609-1R	***0.9****	1.0	1.0	4	0.8	1	4	-	-	-
MSK061-4	***1.1***	1.0	1.0	4	1.0	1	4	1.3	2	3
MSQ289-5	***0.8***	1.0	1.5	4	1.0	1	4	0.5	1	4
MSR161-2	***1.0****	1.0	1.0	4	1.0	1	3	-	-	-
MSN170-A	***1.1****	1.0	1.0	4	1.3	2	4	-	-	-
MSH228-6	***1.3***	1.0	1.0	3	1.5	2	4	1.4	2	4
Red Norland[NCR]	***1.2***	**1.0**	**1.0**	**2**	**1.5**	**3**	**4**	**1.0**	**2**	**4**
Beacon Chipper	***1.5***	1.0	1.0	1	1.8	2	4	1.8	2	4
A98298-1	-	1.0	1.0	4	-	-	-	-	-	-
AC99375-1RUS	-	1.0	1.0	1	-	-	-	-	-	-
MSN215-2P	-	1.0	1.0	4	-	-	-	-	-	-
MSR041-3	-	1.0	1.0	4	-	-	-	-	-	-
MSR169-8Y	-	1.0	1.0	2	-	-	-	-	-	-
MSR218-AR	-	1.0	1.0	1	-	-	-	-	-	-
MSR226-ARR	-	1.0	1.0	2	-	-	-	-	-	-
MSS070-1	-	1.0	1.0	1	-	-	-	-	-	-
MSS113-1	-	1.0	1.0	1	-	-	-	-	-	-
MSS163-5	-	1.0	1.0	1	-	-	-	-	-	-
MSS164-6[LBR]	-	1.0	1.0	1	-	-	-	-	-	-
MSS176-1[LBR]	-	1.0	1.0	1	-	-	-	-	-	-
MSS377-10	-	1.0	1.0	1	-	-	-	-	-	-
MSS411-3Y[LBR]	-	1.0	1.0	1	-	-	-	-	-	-
MSS434-2	-	1.0	1.0	1	-	-	-	-	-	-
MSS544-1R	-	1.0	1.0	4	-	-	-	-	-	-
W3160-5LBRUS	-	1.0	1.0	4	-	-	-	-	-	-
W7012-1RUS	-	1.0	1.0	3	-	-	-	-	-	-
MSR102-3[LBR]	***0.8****	1.1	1.5	4	0.5	1	2	-	-	-
Kalkaska (MSJ036-A)	***1.0***	1.1	1.5	4	0.8	1	4	1.2	2	3
MSJ126-9Y	***1.3***	1.1	1.5	4	1.3	2	4	1.5	2	4
MSL268-D[LBR,PVYR]	***1.6***	1.1	1.5	4	1.5	2	4	2.3	3	4
W3952-3RUS	-	1.1	1.5	4	-	-	-	-	-	-
W3328-1RUS	***1.2***	1.2	1.5	3	1.0	2	4	1.5	2	4
MSQ440-2	***1.3***	1.3	2.0	4	1.0	1	4	1.8	2	4
MSR061-1[LBMR,PVYR]	***1.1****	1.3	2.0	4	1.0	1	4	-	-	-

2006-2008 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

	*3-YR**	2008	2008	2008	2007	2007	2007	2006	2006	2006
LINE	*AVG.*	RATING	WORST	N	RATING	WORST	N	RATING	WORST	N
Sorted by ascending 2008 Rating;										
MSR127-2	***1.1****	1.3	1.5	4	1.0	1	3	-	-	-
Russet Burbank[NCR]	***1.5***	**1.3**	**2.0**	**4**	**1.0**	**1**	**4**	**2.3**	**2**	**4**
W5716-1RUS	***1.1****	1.3	2.0	12	1.0	2	4	-	-	-
CO95051-7W	***1.4***	1.3	1.5	4	1.5	2	4	1.4	2	4
CO95172-3RUS	-	1.3	2.0	4	-	-	-	-	-	-
CO99100-1RUS	-	1.3	3.0	4	-	-	-	-	-	-
FL1922	-	1.3	2.0	4	-	-	-	-	-	-
MSN109-6RR	-	1.3	2.0	4	-	-	-	-	-	-
MSR058-1	-	1.3	1.5	4	-	-	-	-	-	-
MSR176-4P	-	1.3	2.0	4	-	-	-	-	-	-
MSS145-4	-	1.3	1.5	2	-	-	-	-	-	-
MSS165-2Y[LBR]	-	1.3	2.0	4	-	-	-	-	-	-
MSS199-2	-	1.3	2.0	4	-	-	-	-	-	-
MSP292-7	***1.3***	1.3	1.5	5	1.0	1	4	1.7	2	3
AC96052-1RUS	-	1.3	2.0	3	-	-	-	-	-	-
W3666-2RUS	-	1.3	2.0	3	-	-	-	-	-	-
Canela Russet	***0.8****	1.4	2.0	4	0.3	1	4	-	-	-
MSJ147-1	***1.4***	1.4	2.0	4	1.0	1	4	1.8	2	4
AND00272-1R	-	1.4	2.5	4	-	-	-	-	-	-
CO99053-4RUS	-	1.4	2.0	4	-	-	-	-	-	-
MSN148-A	-	1.4	2.0	4	-	-	-	-	-	-
ND8307C-3	-	1.4	2.0	4	-	-	-	-	-	-
Pike	***1.4***	**1.4**	**2.0**	**15**	**1.4**	**2**	**8**	**1.4**	**2**	**7**
MSP459-5[LBMR]	***1.5***	1.5	2.0	4	1.0	1	4	2.0	2	4
MSR036-5[LBR]	***1.3****	1.5	2.0	3	1.0	1	3	-	-	-
MSQ461-2PP	***1.4****	1.5	2.0	4	1.3	2	4	-	-	-
MSR157-1Y	***1.4****	1.5	2.0	4	1.3	2	4	-	-	-
MSQ432-2PP	***1.4****	1.5	2.0	2	1.3	2	3	-	-	-
MSQ035-3[LBR]	***2.0***	1.5	2.0	3	1.5	2	2	3.0	3	2
MSQ130-4[LBR]	***1.5****	1.5	2.0	4	1.5	2	4	-	-	-
NY139	***1.5****	1.5	2.0	4	1.5	2	4	-	-	-
MSM060-3	***1.7***	1.5	2.0	4	1.8	2	4	1.8	2	3
MSQ279-1	***1.6****	1.5	2.0	4	1.8	3	4	-	-	-
MSQ086-3[LBR]	***1.5***	1.5	2.0	4	2.0	2	4	1.0	1	4
CO99053-3RUS	-	1.5	3.0	4	-	-	-	-	-	-
Megachip	-	1.5	2.0	4	-	-	-	-	-	-
MSR159-02[LBR]	-	1.5	2.0	3	-	-	-	-	-	-
MSS297-3	-	1.5	1.5	1	-	-	-	-	-	-
MSS303-02	-	1.5	1.5	1	-	-	-	-	-	-
MSS306-4Y	-	1.5	2.0	2	-	-	-	-	-	-
MSS419-8	-	1.5	2.0	2	-	-	-	-	-	-
W8206-1RUS	-	1.5	2.0	3	-	-	-	-	-	-
Boulder	***1.7***	1.6	2.0	4	1.8	2	4	1.6	2	4
MSJ316-A	***1.7***	1.6	2.0	8	1.9	3	8	1.6	2	4

2006-2008 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

	*3-YR**	2008	2008	2008	2007	2007	2007	2006	2006	2006
LINE	*AVG.*	RATING	WORST	N	RATING	WORST	N	RATING	WORST	N
Sorted by ascending 2008 Rating;										
MSQ558-2RR	***1.8****	1.6	2.0	4	2.0	3	4	-	-	-
MSL228-1	-	1.6	2.0	4	-	-	-	-	-	-
MSS428-2	-	1.7	2.0	3	-	-	-	-	-	-
MSS737-1Y[LBR]	-	1.7	2.0	3	-	-	-	-	-	-
W5767-1R	-	1.7	2.0	3	-	-	-	-	-	-
MSM171-A[LBR]	***1.4***	1.7	2.5	8	1.3	2	4	1.3	2	4
Michigan Purple	***2.3***	1.8	2.5	4	2.3	3	4	2.8	3	4
CO98067-7RUS	-	1.8	3.0	4	-	-	-	-	-	-
MSM037-3	-	1.8	2.0	4	-	-	-	-	-	-
MSN251-1Y[LBR]	-	1.8	2.0	4	-	-	-	-	-	-
MSS206-2[LBR]	-	1.8	2.0	4	-	-	-	-	-	-
MSS526-1	-	1.8	3.0	4	-	-	-	-	-	-
Onaway	-	**1.8**	**2.0**	**7**	-	-	-	-	-	-
MSR160-2Y[LBR,PVYR]	***1.5****	1.8	2.5	3	1.3	2	4	-	-	-
MSR297-A	-	1.8	2.0	3	-	-	-	-	-	-
W2253-5RUS	-	1.8	2.5	6	-	-	-	-	-	-
MSQ089-1	***1.4****	1.9	2.0	7	1.0	1	3	-	-	-
MSQ134-5[LBR]	***1.7****	1.9	2.5	4	1.5	2	4	-	-	-
MSN105-1[LBMR]	***1.8***	1.9	2.5	4	2.0	3	4	1.5	2	2
W2310-3	***1.9***	1.9	3.0	8	2.0	3	4	1.8	3	4
MSQ425-4Y	***2.4****	1.9	2.0	4	3.0	3	1	-	-	-
MSK409-1	***1.3***	2.0	4.0	3	0.8	1	4	1.0	1	4
MSR128-4Y	***1.5****	2.0	2.5	4	1.0	1	3	-	-	-
MSN190-2	***1.6***	2.0	2.0	4	1.3	2	4	1.6	2	4
MSQ029-1[LBR]	***1.8***	2.0	2.0	4	1.3	2	3	2.0	2	1
CORN#3	***1.8****	2.0	2.0	4	1.5	2	4	-	-	-
MSM070-1	***1.8****	2.0	3.0	4	1.5	2	4	-	-	-
FL2053	***2.1***	2.0	2.5	4	1.8	2	4	2.5	3	4
Reba	***1.9****	2.0	2.5	8	1.8	2	4	-	-	-
MSQ176-5[LBR]	***2.2***	2.0	2.0	3	2.0	2	4	2.5	3	2
AOTX95265-3Ru	-	2.0	3.0	4	-	-	-	-	-	-
CO98368-2RUS	-	2.0	2.5	3	-	-	-	-	-	-
MSQ131-A[LBR]	-	2.0	2.0	4	-	-	-	-	-	-
MSR226-1RR	-	2.0	2.0	3	-	-	-	-	-	-
MSS042-1Y	-	2.0	2.0	1	-	-	-	-	-	-
MSS048-1	-	2.0	3.0	2	-	-	-	-	-	-
MSS258-1	-	2.0	2.0	1	-	-	-	-	-	-
MSS476-05SPL	-	2.0	3.0	4	-	-	-	-	-	-
MSS487-2	-	2.0	2.0	1	-	-	-	-	-	-
MSS547-2R	-	2.0	2.0	1	-	-	-	-	-	-
MSS737-5Y	-	2.0	2.0	2	-	-	-	-	-	-
MSS927-1	-	2.0	2.0	4	-	-	-	-	-	-
ND7132-1	-	2.0	3.0	2	-	-	-	-	-	-
MSJ461-1[LBR]	***1.9***	2.1	3.0	8	1.8	3	4	1.8	2	4

2006-2008 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

	*3-YR**	2008	2008	2008	2007	2007	2007	2006	2006	2006
LINE	*AVG.*	RATING	WORST	N	RATING	WORST	N	RATING	WORST	N
Sorted by ascending 2008 Rating;										
W2133-1[NCR]	***1.9***	2.1	3.0	8	1.8	2	4	2.0	2	4
MSR041-5	***1.6****	2.1	2.5	4	1.0	1	2	-	-	-
MSN238-A	***1.6***	2.1	2.5	4	1.3	2	4	1.5	2	4
MSM182-1[LBR,PVYR]	***2.3***	2.1	2.5	4	2.0	3	4	2.7	3	3
CORN#8	***2.2****	2.1	3.0	4	2.3	3	4	-	-	-
CO98012-5R	-	2.1	3.0	4	-	-	-	-	-	-
MSQ492-2[LBR]	***1.8***	2.2	3.0	3	1.3	2	4	1.8	2	3
MSI005-20Y[NCR]	***2.2***	2.2	3.0	9	2.0	2	4	2.5	3	4
MSS026-2Y	-	2.2	2.5	3	-	-	-	-	-	-
MSS917-3[LBR]	-	2.2	2.5	3	-	-	-	-	-	-
AOTX95265-2ARu	-	2.3	2.5	4	-	-	-	-	-	-
AOTX95265-4Ru	-	2.3	3.0	4	-	-	-	-	-	-
MSR219-2R	-	2.3	3.0	4	-	-	-	-	-	-
MSR241-4RY	-	2.3	3.0	4	-	-	-	-	-	-
MSS203-1	-	2.3	2.5	2	-	-	-	-	-	-
MSR705-2	-	2.3	3.0	3	-	-	-	-	-	-
MSS097-3[LBR]	-	2.3	3.0	3	-	-	-	-	-	-
MSS582-1SPL	***2.2****	2.4	3.0	4	2.0	3	5	-	-	-
Atlantic	***2.5***	**2.4**	**3.0**	**12**	**2.4**	**3**	**16**	**2.8**	**3**	**16**
A00727-1	-	2.4	3.0	4	-	-	-	-	-	-
MSN032-A	-	2.4	3.0	4	-	-	-	-	-	-
MSS483-1[LBR]	-	2.4	3.0	4	-	-	-	-	-	-
W2717-5	-	2.4	3.0	4	-	-	-	-	-	-
Eva[PVYR]	-	2.4	3.0	10	-	-	-	-	-	-
FL1879	***2.4***	2.5	3.0	11	2.0	2	4	2.6	3	4
MSN191-2Y	***2.2***	2.5	3.0	4	1.5	2	4	2.5	3	4
MSM246-B	***2.4***	2.5	3.0	3	2.3	3	4	2.4	4	4
MSN135-A	-	2.5	3.0	4	-	-	-	-	-	-
MSS022-1	-	2.5	3.0	2	-	-	-	-	-	-
MSS350-5Y	-	2.5	2.5	1	-	-	-	-	-	-
MSS718-1	-	2.5	3.0	2	-	-	-	-	-	-
MSS913-1	-	2.5	3.5	2	-	-	-	-	-	-
W6234-4RUS	-	2.5	3.0	2	-	-	-	-	-	-
Snowden[NCR]	***2.7***	**2.6**	**3.0**	**16**	**2.6**	**3**	**18**	**2.8**	**3**	**16**
AOND95292-3RUS	-	2.6	3.0	4	-	-	-	-	-	-
MSN200-2	-	2.6	3.0	4	-	-	-	-	-	-
W3186-2	-	2.6	3.0	4	-	-	-	-	-	-
W4013-1	-	2.6	3.5	4	-	-	-	-	-	-
Rio Colorado	***2.1****	2.8	3.0	4	1.5	2	4	-	-	-
ATND98459-1RY	***2.4****	2.8	3.0	4	2.0	2	4	-	-	-
MSL292-A	***2.5***	2.8	3.0	4	2.3	3	4	2.5	3	4
MSS934-4	-	2.8	3.0	2	-	-	-	-	-	-
W6968-2RUS	-	2.8	4.0	4	-	-	-	-	-	-
MSM288-2Y	***2.1****	2.9	3.0	4	1.3	2	4	-	-	-

2006-2008 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

	*3-YR**	2008	2008	2008	2007	2007	2007	2006	2006	2006
LINE	*AVG.*	RATING	WORST	N	RATING	WORST	N	RATING	WORST	N
Sorted by ascending 2008 Rating;										
MSN111-4PP	-	2.9	3.5	4	-	-	-	-	-	-
W3743-5RUS	-	2.9	3.5	4	-	-	-	-	-	-
Yukon Gold	***2.9****	**3.0**	**3.0**	**1**	**2.8**	**3**	**4**	**-**	**-**	**-**
MSL082-A	-	3.0	4.0	4	-	-	-	-	-	-
MSM170-2	-	3.0	3.0	4	-	-	-	-	-	-
MSP335-1	-	3.0	3.0	4	-	-	-	-	-	-
MSR216-AP	-	3.0	3.0	1	-	-	-	-	-	-
MSS025-2	-	3.0	3.0	1	-	-	-	-	-	-
MSS108-1[LBR]	-	3.0	3.0	1	-	-	-	-	-	-
MSS442-2[LBR]	-	3.0	3.0	2	-	-	-	-	-	-
MSS517-2P	-	3.0	3.0	1	-	-	-	-	-	-
Jacqueline Lee[LBR]	***2.8****	3.3	4.0	4	2.3	3	4	-	-	-
MSS110-05	-	3.4	4.0	4	-	-	-	-	-	-
ND8304-2	***3.1****	3.6	5.0	4	2.5	3	4	-	-	-
Russet Norkotah[NCR]	***2.1****	**-**	**-**	**-**	**2.0**	**3**	**4**	**2.2**	**3**	**3**

SCAB DISEASE RATING: MSU Scab Nursery plot rating of 0-5; 0: No Infection; 1: Low Infection <5%, no pitted leisions; 3: Intermediate >20%, some pitted leisions (Susceptible, as commonly seen on Atlantic); 5: Highly Susceptible, >75% coverage and severe pitted leisions.

$LSD_{0.05}$ = **0.9** **0.9** **0.9**

[LBR] Line(s) demonstrated foliar resistance to Late Blight (*Phytopthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

[NCR] North Central Regional Entry

N = Number of replications.

Table 12

MICHIGAN STATE UNIVERSITY

POTATO BREEDING and GENETICS

2008 LATE BLIGHT VARIETY TRIAL
MUCK SOILS RESEARCH FARM

LINE	RAUDPC[1] MEAN	Female	Male	LINE	RAUDPC[1] MEAN
Sorted by ascending RAUDPC value:					
Foliar Resistance Category (select lines):				***Foliar Susceptibility Category (select lines)[2]:***	
MSQ176-5	0.0	MSI152-A	MSJ461-1	**RussetBurbank**	**16.9**
Jacqueline Lee	**0.0**	**Tollocan**	**Chaleur**	**PremierRusset**	**17.2**
MSR102-3	0.0	W1773-7	MSJ461-1	**SilvertonRusset**	**17.3**
MSQ131-A	0.2	Boulder	MSJ461-1	CO95051-7W	19.1
MSL082-A	0.2	MSE221-1	J. Lee	MSQ089-1	19.3
MSQ134-5	0.2	MSG004-3	MSJ461-1	AC96052-1RUS	19.6
MSQ492-2	0.3	Pike	MSJ461-1	**Pike**	**20.2**
MSQ029-1	0.4	B0766-3	NY121	W2324-1	20.4
MSR159-02	0.4	MSL766-1	MSJ126-9Y	MSS917-3	20.7
W6360-1RUS	0.4			W5716-1RUS	20.7
MSL268-D	0.5	NY103	J. Lee	W2133-1	20.8
MSQ035-3	0.6	MSG227-2	MSJ461-1	ND7994-1RUS	20.9
MSQ070-1	0.6	MSK061-4	MSJ461-1	MSR297-A	21.0
AWN86514-2	0.6			W2310-3	21.4
B2424-82	0.7			MSL228-1SPL	21.5
AF2376-5	0.7			MSN191-2Y	21.5
MSQ086-3	0.9	Onaway	MSJ461-1	MSM246-B	21.7
B0718-3	1.2			MSM288-2Y	22.0
MSR041-5	1.3	Liberator (A091-1)	MSJ461-1	AOTX95265-2ARUS	22.3
A97066-42LB	1.4			**Atlantic**	**22.3**
MSM182-1	1.5	Stirling	NY121	NY139	23.0
MSJ461-1	**2.0**	**Tollocan**	**NY88**	**Snowden**	**23.3**
B2460-23	3.1			ND98459-1RY	23.8
AOND95249-1RUS	3.8			A0008-1TE	25.4
W5015-5	4.3			MSR219-2R	25.9
MSN251-1Y	4.7	Torridon	MSG227-2	CO96141-4W	25.9
MSR061-1	4.9	W1201	NY121	CO99053-4RUS	26.6
MSN105-1	5.0	MSG141-3	J. Lee	Michigan Purple	26.7
AF2574-1	5.6			RioColorado	27.2
B2430-4	5.9			MSS544-1R	28.3
B0692-4	6.0			FL2053	28.4
OR03029-2	7.5			CO99100-1RUS	28.7
W3160-5LBrus	7.6			W2609-1R	29.7
B2432-33	7.9			CO98368-2RUS	31.0
MSM171-A	8.3	Stirling	MSE221-1	**Onaway**	**44.4**
$LSD_{0.05}$	8.0				

[1] Ratings indicate the average plot RAUDPC (Relative Area Under the Disease Progress Curve).

[2] 138 potato varieties and advanced breeding lines were tested in all. For brevity purposes, only selected varieties and breeding lines are listed.

Phytopthora infestans isolates US-1 (Pi 95-3); US-6 (Pi 95-2); US-8 (Pi 02-007, Pi 06-01, Pi 06-02); US-10 (Pi Banam); US-11 (Pi 96-1); US-14 (Pi 98-1, Pi 99-2) were inoculated on 7/30/08.

Planted as a randomized complete block design consisting of 3 replications of 4 hill plots on 6/5/2008.

Table 13

MICHIGAN STATE UNIVERSITY

POTATO BREEDING and GENETICS

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
ENTRY	0	1	2	3	4	5+		
DATE OF HARVEST: LATE HARVEST								
MSM246-B	18	5	2				72	0.4
MSL268-D	17	4	4				68	0.5
MSN105-1	16	6	3				64	0.5
MSM070-1	15	7	2	1			60	0.6
MSN170-A	16	4	3	1	1		64	0.7
MSM171-A	13	8	1	2	1		52	0.8
Pike	**11**	**8**	**4**	**2**			**44**	**0.9**
MSP459-5	7	9	5	3	1		28	1.3
FL1879	7	6	7	3	1	1	28	1.5
Atlantic	**6**	**7**	**4**	**4**	**2**	**2**	**24**	**1.8**
Snowden	**5**	**5**	**7**	**4**	**2**	**2**	**20**	**2.0**
ADVANCED TRIAL								
MSJ126-9Y	21	4					84	0.2
MSR061-1	16	8	1				64	0.4
MSK061-4	16	5	4				64	0.5
Pike	**15**	**7**	**1**	**1**	**1**		**60**	**0.6**
MSQ176-5	13	8	4				52	0.6
MSI005-20Y	11	12	1	1			44	0.7
MSJ147-1	13	8	3	0	1		52	0.7
MSN238-A	11	8	5	0	0	1	44	0.9
MSH228-6	10	9	3	3			40	1.0
MSN191-2Y	12	8	1	1	2	1	48	1.0
MSJ036-A	8	10	3	4			32	1.1
FL1879	7	10	5	2		1	28	1.2
MSK409-1	8	7	6	2	1	1	32	1.4
Beacon Chipper	9	5	6	3	1	1	36	1.4
MegaChip	5	7	9	3	1		20	1.5
MSQ070-1	5	8	5	2	5		20	1.8
Snowden	**4**	**4**	**7**	**8**	**2**		**16**	**2.0**
ROUND-WHITE TRIAL (+North Central Regional Entries)								
ND8304-2	21	2	1	1			84	0.3
MSJ316-A	19	4	2				76	0.3
ND8307C-3	17	5	3				68	0.4
MSM171-A	13	9	3				52	0.6

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

ENTRY	NUMBER OF SPOTS PER TUBER 0	1	2	3	4	5+	PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
Norvalley	**11**	**9**	**2**	**3**			**44**	**0.9**
MSJ461-1	9	10	4	2			36	1.0
Atlantic	**8**	**4**	**8**	**4**	**1**		**32**	**1.4**
W2310-3	6	7	7	4	1		24	1.5
MSI005-20Y	2	9	3	4	1		11	1.6
Snowden	**6**	**3**	**9**	**4**	**2**	**1**	**24**	**1.8**
W2133-1	1	4	10	7	2	1	4	2.3
RUSSET TRIAL								
Russet Norkotah[NCR]	**23**	**2**					**92**	**0.1**
W2253-5RUS	23	2					92	0.1
CO98067-7RUS	22	3					88	0.1
CO99053-4RUS	22	3					88	0.1
CO98368-2RUS	20	5					80	0.2
A0008-1TE	19	6					76	0.2
AOTX95265-4Ru	20	4	1				80	0.2
W7012-1RUS	19	6					76	0.2
AOTX95265-2ARu	19	5	1				76	0.3
AOTX95265-3Ru	18	7					72	0.3
CO99100-1RUS	19	5	1				76	0.3
CORN #8	15	9	1				60	0.4
CO99053-3RUS	13	10	2				52	0.6
A95109-1	14	8	2	0	1		56	0.6
CORN #3	14	6	4	1			56	0.7
AOND95292-3RUS[NCR]	10	10	5				40	0.8
W3666-2RUS	12	7	5	0	1		48	0.8
W6234-4RUS	15	4	2	3	1		60	0.8
Silverton Russet	13	5	4	2	1		52	0.9
A98298-1	15	5	1	1	0	3	60	1.0
W3328-1RUS	9	7	8	1			36	1.0
CO95172-3RUS	10	5	6	3	1		40	1.2
Russet Burbank[NCR]	**9**	**9**	**2**	**4**	**0**	**1**	**36**	**1.2**
W6968-2RUS	6	10	6	2	0	1	24	1.3
AC96052-1RUS	7	7	8	2	0	1	28	1.4
A8254-2BRUS	5	7	10	3			20	1.4
W5716-1RUS[NCR]	4	8	9	3	1		16	1.6
W8206-1RUS	8	4	6	4	2	1	32	1.6
W5716-1RUS	4	8	7	4	1	1	16	1.7

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

ENTRY	NUMBER OF SPOTS PER TUBER 0	1	2	3	4	5+	PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
Canela Russet	4	9	5	3	3	1	16	1.8
W2683-2RUS[NCR]	3	8	8	3	3		12	1.8
AC99375-1RUS	4	7	5	7	2		16	1.8
A00727-1	4	5	10	3	0	3	16	2.0
ADAPTATION TRIAL, CHIP-PROCESSING LINES								
MSP292-7	25	0					100	0.0
MSM037-3	24	1					96	0.0
MSQ432-2PP	21	4					84	0.2
MSL292-A	20	5					80	0.2
Pike	**19**	**5**	**1**				**76**	**0.3**
MSQ089-1	20	2	3				80	0.3
MSR169-8Y	17	7	1				68	0.4
MSQ492-2	16	8	1				64	0.4
FL1879	16	7	2				64	0.4
MSQ289-5	17	7	0	0	1		68	0.4
MSR041-3	14	9	2				56	0.5
MSQ279-1	16	5	3	1			64	0.6
Boulder	16	4	4	1			64	0.6
MSQ558-2RR	13	7	3	2			52	0.8
CO95051-7W	13	5	6	1			52	0.8
NY139	12	9	1	3			48	0.8
Atlantic	**12**	**6**	**4**	**3**			**48**	**0.9**
MSR160-2Y	10	10	2	3			40	0.9
W2717-5	15	5	2	0	1	2	60	0.9
W4013-1	7	7	9	2			28	1.2
Snowden	**8**	**8**	**2**	**6**	**1**		**32**	**1.4**
MSR036-5	8	7	5	2	3		32	1.4
MSP368-1	7	6	6	5	1		28	1.5
MSN148-A	6	2	8	5	3	1	24	2.0
ADAPTATION TRIAL, TABLESTOCK LINES								
AND00272-1R[NCR]	23	2					92	0.1
Red Norland[NCR]	23	2					92	0.1
Yukon Gold	**22**	**3**					**88**	**0.1**
MSM288-2Y	21	4					84	0.2
MSQ086-3	20	4	1				80	0.2
MSL228-1SPL	19	5	0	1			76	0.3

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
ENTRY	0	1	2	3	4	5+		
Red Pontiac[NCR]	18	6	1				72	0.3
Rio Colorado	18	5	2				72	0.4
CO98012-5R	17	5	3				68	0.4
MSN215-2P	16	7	2				64	0.4
Eva	16	6	3				64	0.5
MI Purple	14	10	0	1			56	0.5
Reba	15	7	3				60	0.5
ATND98459-1RY[NCR]	15	5	2	0	1		65	0.6
MSQ461-2PP	14	8	2	1			56	0.6
Onaway	**14**	**6**	**3**	**2**			**56**	**0.7**
MSM182-1	12	8	2	2	1		48	0.9
MSQ134-5	13	4	5	3			52	0.9
MSQ425-4Y	9	10	4	1	1		36	1.0
ND7132-1R[NCR]	12	4	3	5	1		48	1.2
MSR157-1Y	14	1	5	3	1	1	56	1.2
Jacqueline Lee	8	6	6	5			32	1.3
W5767-1R[NCR]	7	6	6	3	1	2	28	1.6
MSN251-1Y	4	4	7	4	4	2	16	2.2
PRELIMINARY TRIAL, CHIP-PROCESSING LINES								
MSQ130-4	21	4					84	0.2
MSQ029-1	20	4	1				80	0.2
MSS199-2	20	3	2				80	0.3
MSQ035-3	19	3	3				76	0.4
Pike	**16**	**7**	**2**				**64**	**0.4**
MSS306-4Y	16	5	4				64	0.5
MSQ089-1	15	5	4	1			60	0.6
MSR128-4Y	12	10	3				48	0.6
MSS915-1	16	4	3	2			64	0.6
MSS927-1	12	10	2	1			48	0.7
MSR102-3	11	7	6	1			44	0.9
MSS514-1PP	9	11	4	1			36	0.9
MSS303-02	8	10	3	4			32	1.1
MSM060-3	7	9	7	2			28	1.2
MSS108-1	9	7	5	4			36	1.2
MSS165-2Y	8	6	7	4			32	1.3
FL1879	8	5	7	4	1		32	1.4
MSR161-2	5	6	7	5	1	1	20	1.8

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
ENTRY	0	1	2	3	4	5+		
MSS428-2	3	10	6	3	2	1	12	1.8
MSR226-1RR	2	11	3	6	3		8	1.9
MSR058-2	3	6	6	7	2	1	12	2.1
Atlantic	**2**	**2**	**7**	**5**	**8**	**1**	**8**	**2.7**
MSS026-2Y	2	5	4	4	6	4	8	2.8
Snowden	**1**	**5**	**5**	**3**	**10**	**1**	**4**	**2.8**
PRELIMINARY TRIAL, TABLESTOCK LINES								
MSQ131-A	23	2					92	0.1
MSS526-1	18	4	3				72	0.4
MSS582-1SPL	17	7	0	1			68	0.4
MSR297-A	17	4	4				68	0.5
MSS206-2	15	8	2				60	0.5
MSR159-02	15	8	1	1			60	0.5
MSS576-05SPL	15	7	3				60	0.5
MSN111-4PP	14	7	4				56	0.6
MSS544-1R	14	7	4				56	0.6
MSR219-2R	13	8	3	1			52	0.7
MSS442-2	12	10	2	1			48	0.7
Onaway	**10**	**10**	**3**				**43**	**0.7**
Reba	12	8	4	1			48	0.8
MSS483-1	13	5	6	1			52	0.8
MSR218-AR	8	14	2	1			32	0.8
MSS917-3	12	7	4	2			48	0.8
MSS097-3	9	12	2	1	1		36	0.9
MSR241-4RY	8	8	9				32	1.0
MSS164-6	11	8	3	1	1	1	44	1.0
MSS737-1	7	11	3	2	2		28	1.2
MSR176-4P	7	6	7	5			28	1.4
MSS411-3Y	4	7	7	6	1		16	1.7
MSS176-1	6	4	9	2	3	1	24	1.8
TRANSGENIC TRIAL								
ATL Newleaf	11	9	4	1			44	0.8
E69.6	20	2	2	1			80	0.4
E75.26	11	8	4	1	1		44	0.9
E75.7	22	3					88	0.1
ND75.3	9	5	4	5	1	1	36	1.5
ND75.6	4	9	6	2	2	2	16	1.8

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
ENTRY	0	1	2	3	4	5+		
NO8.28	20	4	1				80	0.2
NO8.8	19	4	1	1			76	0.4
Norwis	10	10	3	1	1		40	0.9
ONAGP.1	6	1	7	8	3		24	2.0
ONAGP.2	0	6	8	7	3	2	0	2.5
R605-10	15	4	4	1	1		60	0.8
R605-2	22	3					88	0.1
R605-5	16	7	1	1			64	0.5
R605-7	19	5	1				76	0.3
R605-8	22	2	0	1			88	0.2
R606-2	16	5	4				64	0.5
R606-7	18	5	2				72	0.4
RB Spunta CSPAG.13	13	11	1				52	0.5
SPA69.13	20	4	1				80	0.2
SP15.5	20	5					80	0.2
SP15.8	23	2					92	0.1
SPHPPD.13	20	4	1				80	0.2
SPHPPD.15	22	2	0	1			88	0.2
SPHPT.3	25	0					100	0.0
Spunta	16	8	1				64	0.4
SpuntaG2	18	7					72	0.3
Yukon Gold	22	2	1				88	0.2
YG8.12	23	2					92	0.1
YG8.8	20	4	1				80	0.2
USPB/SFA TRIAL CHECK SAMPLES (Not bruised)								
CO96141-4W	25	0					100	0.0
NY138	24	1					96	0.0
ND7519-1	23	2					92	0.1
CO95051-7W	22	2	1				88	0.2
AF2291-10	21	3	1				84	0.2
CO97043-14W	21	3	1				84	0.2
W2717-5	19	4	1	1			76	0.4
CO97065-7W	19	3	2	1			76	0.4
MSJ147-1	17	4	3	1			68	0.5
W2310-1	16	5	3	1			64	0.6
Kalkaska (MSJ036-A)	15	6	4				60	0.6
Beacon Chipper	16	4	3	1	1		64	0.7
Atlantic	**12**	**9**	**4**				**48**	**0.7**

2008 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
ENTRY	0	1	2	3	4	5+		
Snowden	**13**	**7**	**4**	**1**			**52**	**0.7**
NY139	12	9	2	2			48	0.8
W2324-1	12	4	6	3			48	1.0
USPB/SFA TRIAL BRUISE SAMPLES								
NY138	24	1					96	0.0
CO95051-7W	21	3	1				84	0.2
CO96141-4W	20	4	1				80	0.2
CO97043-14W	17	5	3				68	0.4
ND7519-1	13	10	2				52	0.6
Atlantic	**13**	**7**	**4**	**0**	**0**	**1**	**52**	**0.8**
AF2291-10	13	7	1	3	1		52	0.9
W2717-5	12	7	2	4			48	0.9
CO97065-7W	14	2	3	4	1	1	56	1.2
MSJ147-1	9	6	7	1	2		36	1.2
Kalkaska (MSJ036-A)	9	8	4	2	1	1	36	1.2
W2310-1	8	7	2	3	4	1	32	1.6
Beacon Chipper	8	4	4	6	2	1	32	1.7
W2324-1	7	3	6	4	4	1	28	1.9
Snowden	**4**	**6**	**4**	**7**	**1**	**3**	**16**	**2.2**
NY139	3	3	4	7	3	5	12	2.8

* Twenty or twenty-five A-size tuber samples were collected at harvest, held at 50 F at least 12 hours, and placed in a six-side plywood drum and rotated ten times to produce simulated bruising. Samples were abrasive-peeled and scored 10/30/08. The table is presented in ascending order of average number of spots per tuber.