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2007 POTATO VARIETY EVALUATIONS

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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 2007, we trialed 193 varieties and breeding lines. 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 market or for processing, and to develop recommendations for the growing of those varieties. 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 field, 45°F and 50°F 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 long and spacing between plants was 12 inches. Inter-row spacing was 34 inches. Supplemental irrigation was applied as needed. The field experiments were conducted on new potato ground that was in corn the previous year.

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 other field trials were the Round White, Russet and Long-Types, Red-Skinned, Adaptation (chip-processors and tablestock), and Preliminary (chip-processors and tablestock) and Transgenic. In each of these trials, the yield was graded into four size classes, incidence of external and internal defects in > 3.25 in. diameter (or 10 oz. for Russet types) potatoes were recorded, and samples for specific gravity, chipping, disease tests, bruising, and cooking tests were taken. Chip quality was assessed on 25-tuber

samples, taking two slices from each tuber. Chips were fried at 365°F. The chip color was measured visually with the SFA 1-5 color chart. Tuber samples were also stored at 45°F and 50°F for chip-processing out of storage in January and March. Advanced selections are also placed in the Commercial Demonstration Storage 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.

RESULTS

A. Date of Harvest Trial Varieties:

Chip-processors and Tablestock (Tables 1 and 2)

There were 17 entries that were compared at two harvest dates (98 and 141 days). Atlantic, Snowden, Pike and three Frito-Lay clones were used as checks. The two new Frito-Lay clones evaluated this year were FL2053 and FL2101. The plot yields were average to above average in the early harvest (98 days), and specific gravity values were more typical to an average year. On average, there was only a 35 cwt/a increase in yield for the second harvest date (141 days). The results are summarized in **Tables 1 and 2**. Hollow heart and vascular discoloration were the most prevalent internal defects this year. FL1879, Atlantic, and FL2101 showed the highest incidence of hollow heart in the early harvest. There was a high incidence of above-average hollow heart in the late harvest ranging from FL1879 (43%), Beacon Chipper, Atlantic, Snowden, FL2101, to FL2053 (23%). In the early harvest trial, the best yielding lines were FL1879, MSN105-1, and MSM171-A. MSN105-1 is a round-white tablestock line with bright skin, excellent type, moderate scab resistance, moderate foliar late resistance, and an early maturity. MSM171-A is also a round-to-oblong white tablestock line with scab resistance, strong foliar late resistance, and an early maturity. The highest yielder for the late harvest was FL1879, followed by MSJ036-A, Snowden, MSN105-1, MSJ316-A, and MSM171-A. MSJ036-A has high yield potential and shows scab resistance and chip-processing potential. MSJ316-A continues to be a consistent yielding line with scab resistance. MSJ147-1 is showing promise as a chipper out of colder and long term storage, and we were surprised by the low yield seen in 2007. In addition, MSJ036-A, MSJ126-9Y, MSJ316-A, MSH228-6, MSK061-4, and MSK409-1 offer scab resistance.

The out-of-the-field chip scores for 2007 were more typical than we have seen in past years. All chip-processing lines made excellent chips out of the field, with many having above average chip quality (i.e. chip scores marked as 1.0! for Beacon Chipper, MSH228-6, MSJ147-1, MSK061-4, MSK409-1, and FL2101).

Variety 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.

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

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 moderate 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 large percentage of A-size tubers. It has performed well in on-farm trials and has demonstrated an excellent long-term storage chipping profile.

MSJ316-A – an MSU chip-processing selection. Has high yield potential and scab resistance and bright skin appearance. Currently in on-farm trials. There are concerns of Pike-type necrosis occurring sporadically.

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.

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

MSM171-A – a round-white tablestock line in moderate scab resistance and strong foliar late blight resistance. This line also has an early maturity with an attractive set of tubers.

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

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.

In December 2004, 2005 and 2007, MPIC sponsored a booth at the Great Lakes Expo to market Liberator, Michigan Purple and Jacqueline to the farm market/roadside stand market segment. The booth was not at the Great Lakes Expo in 2006 due to a scheduling conflict. There is an increasing interest in specialty potato varieties and a growing demand for new, unique potato varieties. We also show-cased 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 are 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. Do not let the tubers oversize. 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. It has great potential in the roadside stand and farm markets.

JACQUELINE LEE – an MSU oval/oblong tablestock selection with a high tuber set. The tubers have the 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. It has great potential in the roadside stand and farm markets.

B. North Central Regional Trial Entries (Tables 3, 4, 5)

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 North Dakota, Minnesota, Wisconsin, Michigan and Canada. The funding situation in 2007 negatively affected the number of entries for these trials. Eleven breeding lines from 3 universities and 6 varieties were tested in Michigan in 2007 (compared to 18 breeding lines from 5 universities in 2006). The clones were incorporated in the Round White (4 entries), Russet (5 entries), or Red-Skinned (2 entries) trials according to market class, and the results are presented in **Tables 3, 4, and 5**. These lines are designated with the superscript^{NCR} in the tables. The MSU lines MSJ316-A, MSI005-20Y and MSA8254-2BRUS were the Michigan representatives included in the 2007 North Central Trial. MSJ316-A has a uniform type with scab resistance and good chip quality. MSI005-20Y is a yellow-fleshed line with high yield potential and an attractive round appearance. The russet line MSA8254-2BRUS has good agronomic characteristics including high yield potential and strong scab resistance. The most promising Wisconsin selections were W2324-1 (the highest yielder in the Round White Trial) and W2133-1.

C. Round White Varieties (Table 3)

The 17 lines in the Round White Trial consisted mainly of the round-white chip-processing entries from the North Central Regional Trial, as well as other breeding lines from New York, Wisconsin, and Colorado. The trial was harvested 134 days after planting. The top yielding lines were W2324-1, CO96141-4W, and MSJ316-A. The specific gravities were low comparable to a typical year in Michigan (1.078 for Atlantic, 1.074 for Snowden). Hollow heart and vascular discoloration were the predominant internal defects. The greatest hollow heart was seen in W2564-2 (43%), Atlantic (30%) and AC97097-14W (28%). Vascular discoloration was above average as noted in Snowden (58%).

D. Russet Varieties (Table 4)

The russet trial had 18 lines evaluated in 2007 after 127 days. Russet Burbank and Russet Norkotah were the reference varieties used in the trial and the results are summarized in **Table 4**. Scab resistance was prevalent among the lines tested. Hollow heart and vascular discoloration were the most prevalent internal defects. The most hollow heart was observed in CORN-3 (53%), A93157-6LS (48%), and AND98324-1RUS (43%). Specific gravity measurements were below average with Russet Burbank and Russet Norkotah having 1.071 and 1.065 readings, respectively. The yield of the overall trial was below average for 2007, which has been typical for the Russet trials at the Montcalm Research Farm. Off type and cull tubers were found in nearly all lines tested, with the greatest pickouts from Russet Burbank (17%). Vine maturity varied among lines but it did not correlate with yield. The highest yielding entry was W5716-1RUS, a new breeding line from Wisconsin. MSA8254-2BRUS is a high yielding MSU selection with excellent scab resistance that has also performed well in on-farm trials. Two of the Colorado Russet Norkotah Line Selections were also evaluated (CORN-3 and CORN-8). Two of the russets evaluated are being considered for release from Idaho (A93157-6LS) and Wisconsin (W2683-2RUS).

E. Red-Skinned Varieties (Table 5)

Eleven lines were harvested in the red trial in 2007 after 127 days. The highest yielding line was Red Pontiac, followed by ATND98459-1RY and Michigan Purple. In general, internal quality was good, with only Red Pontiac having 20% hollow heart. Among the reds in this trial, scab tolerance was noted in ND5002-3R, ND4659-5R, W2609-1R, and W3882-1R. MSL228-1 has unique splashes of color around the eyes that may make it attractive to the specialty market. This line is being considered for license to Garden's Alive for catalog sales to home gardeners.

F. 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 16 advanced breeding lines are reported in the chip-processing trial. The trial was harvested after 141 days and the results are summarized in **Table 6**. The line MSJ461-1, which has chip quality and strong foliar late blight resistance, was the highest yielding line (145 cwt/a greater than Snowden). Multiple new breeding lines combine scab resistance and chip-processing: MSN190-2, MSN238-A, MSP516-A, MSQ029-1, MSQ070-1, MSQ089-1, and MSQ492-2. Of these lines, some also combine late blight resistance, scab resistance, and chip-processing: MSP516-A, MSQ029-1, MSQ070-1, and MSQ492-2. MSQ029-1 also has resistance to PVY. MSL268-D has foliar late blight resistance. MS246-B is a good chip-processing line that has yield potential and a specific gravity comparable to Atlantic.

In the tablestock trial, Yukon Gold was the check variety and 13 advanced breeding lines are summarized in the table. The trial was harvested after 134 days and the results are summarized in **Table 7**. In general, the yield was good in this trial and internal defects were low. Seven of the 13 lines have late blight resistance (including Jacqueline Lee) and 3 lines have moderate to strong scab resistance. Seven of the 13 lines also had early maturity, often combined with scab and/or late blight resistance. Boulder and MSK498-1 were the highest yielding lines and also have moderate scab resistance. Promising lines with attractive type for the tablestock market and strong foliar late blight resistance include MSL106-AY, MSL183-AY, MSM182-1, MSM137-2, MSQ176-5, and MSQ440-2. MSQ440-2 has excellent type and combines scab and late blight resistance with early maturity. MSM182-1 also has PVY resistance. Another line that has a very attractive, smooth type and bright skin is MSN084-3. 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.

G. 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 37 advanced selections and two check varieties (Atlantic and Snowden). The chip-processing trial that is summarized in **Table 8** was harvested after 135 days. Most lines chip-processed well from the field. Specific gravity values and yields were average for the trial. Twenty-two of the lines (60%) were also classified to be resistant or moderately resistant to scab (≤ 1.5 in 2007). Eight lines have demonstrated late blight resistance and 3 are moderately late blight resistant. Many of these lines combine chip quality with scab and late blight resistance/moderate resistance (MSQ035-3, MSQ130-4, MSQ134-5, MSR036-5, MSR041-5, MSR061-1, MSR102-3,

and MSR160-2Y). The two highest yielding lines were MSQ341-BY and MSR127-2. The two lines MSR061-1 and MSR160-2Y also have PVY resistance.

Table 9 summarizes the 36 tablestock lines evaluated in the Preliminary Trial, including material from South Africa (Reba was used as the check variety). This tablestock trial was harvested and evaluated after 127 days. Five of the 35 lines were late blight resistant, and 11 were scab resistant or moderately resistant. One line, MSP084-3 has good yield potential and moderate resistance to Colorado potato beetle. MSS582-1, MSM224-1, and Michigan Purple Red Sport were the highest yielding lines. MSM183-1 and MSQ086-3 have good type and late blight resistance. MSM288-2Y has an excellent type, strong yellow flesh, and good scab tolerance. A few of the lines in this trial were considered for their unique color attributes for the specialty potato market: Michigan Purple Red Sport, MSQ461-2PP, MSR186-3P, MSQ558-2RR, MSR217-1R, MSQ443-1RR. The purple and red flesh-pigmented lines MSQ461-2PP and MSQ558-2RR have also chipped out of the field. Interestingly, the South African lines were among the lowest yielding lines: Eden, Mnandi (late blight resistant), Darius, Calibra, Van der Plank, Caren, BP-1, Devlin, Esco, and Ronn.

H. 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 (113 days) was used to evaluate a variety of different transgenic material. The Spunta RB line has the *RB* gene cloned from *S. bulbocastanum* which confers resistance to late blight. Three other lines express the *Bt-cry3A* gene which controls Colorado potato beetle (NO8.8, NO8.28 from Norwis, and YG8.8 from Yukon Gold). The majority of the lines were selections from two crosses to combine late blight resistance with the *Bt-cryIIa1* gene (from SpuntaG2) for resistance to potato tuberworm (*Phthorimaea operculella*). There were 10 selections from the MSR605 family (SpuntaG2 x MSJ461-1) and 7 from the MSR606 family (SpuntaG2 x Jacqueline Lee). These selections had a range of performance for yield, specific gravity, and maturity.

I. 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 modified 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 2007 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 84 lines, of the 167 tested, had a scab rating of 1.5 or lower in 2007. 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, MSN238-A, and MSP516-A; as well as some earlier generation lines MSQ070-1, MSQ089-1, MSQ289-5, MSQ440-2, MSR036-5, and MSR061-1. 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. Scab results from the disease nursery are also found in the Trial Summaries (**Tables 2-10**).

J. Late Blight Trial (Table 12)

In 2007, the late blight trial was conducted at the Muck Soils Research Farm, Bath, MI. This year 147 entries were planted for evaluation in replicated plots. The field was planted on June 11 and inoculated July 27 with a combination of isolates (see **Table 12**). The late blight differential lines LBR8 and LBR9 were resistant in 2007 as in previous years (not shown in table). Twenty-eight MSU 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*. The line RB Spunta has resistance derived from a gene cloned from *S. bulbocastanum*. 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. 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.

K. Potato Early Die Trial (Table 13)

Since 1998, selected potato varieties and lines have been evaluated annually at the Montcalm Potato Research Farm for tolerance to the Early-Die Disease Complex. This trial has traditionally been conducted by Dr. George Bird and his team. For 2007, the breeding program worked with Dr. Bird for planting, harvesting, and data collection. Sixteen breeding lines and control varieties were evaluated in 2007. The results of the

trial were somewhat surprising in that multiple lines did not demonstrate a yield advantage for fumigated versus non-fumigated conditions (Table 13). The control variety Russet Norkotah exhibited high levels of susceptibility, although Atlantic did not. This may be a result of the unusually low yield performance of Atlantic in this trial. The surprisingly low yields of many of the lines in this trial may also contribute to differentiating yield differences between fumigated and non-fumigated plots.

Over the previous nine years, the variety Boulder has been classified as tolerant to PED, which was not the case this year. The breeding line MSJ461-1 did exhibit some tolerance this year and was one of the most *Verticillium*-resistant clones evaluated by Dr. Shelley Jansky (USDA/ARS, U. of Wisconsin, pers. comm.). Additional years of testing should help in classifying the PED resistance in potato breeding lines. The rootlesion nematode population pressure is not reported in this trial.

L. Blackspot Bruise Susceptibility (Table 14)

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 reps) from each line, collected at the time of grading. The 25 tuber sample was held in 50°F 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 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 2007, the bruise levels were comparable to previous years. The most bruise resistant lines this year from the advanced trials were MSJ126-9Y, MSN105-1, FL2101, MSK061-4, MSM102-A, MSQ089-1, MSQ440-2, MSL106-AY, MSL183-AY, MSN073-2, ND6095-1, MSP292-7, MSQ130-4, MSR159-2, MSM288-2Y, MSP197-1, MSJ316-A, and MSA8254-2BRUS. The most susceptible lines from the advanced trials were Atlantic, Beacon Chipper, Snowden, MSP516-A, MSP115-3, MSR127-2, MSR158-4, AC97097-14W, and Canela. The bruise resistant MSU entries in the US Potato Board/Snack Food Association Trial were MSJ147-1, and MSJ316-A. Beacon Chipper was the most bruise susceptible in this trial.

Table 1

DATE OF HARVEST TRIAL: EARLY HARVEST
MONTCALM RESEARCH FARM
May 8 to August 13, 2007 (98 days)

LINE	CWT/A		PERCENT OF TOTAL ¹						CHIP SCORE ²	PERCENT (%)				3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR		TUBER QUALITY ³				US#1
										HH	VD	IBS	BC	CWT/A
FL1879	378	399	95	4	70	25	2	1.072	1.0	48	0	0	0	287
MSN105-1 ^{LBR}	363	395	92	8	88	4	0	1.081	1.5	3	0	0	0	239*
MSM171-A ^{LBR}	349	363	96	3	66	30	1	1.061	3.0	5	0	0	0	296*
Atlantic	327	341	96	3	86	10	1	1.084	1.0	28	3	0	0	259
Snowden	307	336	91	9	86	5	0	1.078	1.5	13	8	0	0	240
FL2053	293	324	90	6	85	5	4	1.090	1.5	8	0	0	0	277*
MSJ316-A	269	292	92	8	85	7	0	1.073	2.0	0	0	0	0	153
FL2101	267	295	91	9	88	3	0	1.089	1.5	23	0	3	0	-
MSK409-1	244	286	85	13	85	1	2	1.081	1.0	0	3	0	0	207*
MSK061-4	240	272	88	11	86	2	1	1.081	1.5	0	0	0	0	161
Pike	238	258	92	8	89	3	0	1.079	1.0	5	0	0	0	171
Beacon Chipper	236	243	97	3	82	16	0	1.079	1.0	5	0	0	0	217
MSN191-2Y	233	260	90	10	88	2	0	1.087	1.0	5	0	0	0	-
MSJ126-9Y	224	239	93	5	87	7	1	1.074	2.0	3	0	0	0	206*
MSH228-6	215	243	89	11	88	0	0	1.081	1.0	0	0	0	0	167
MSJ147-1	136	204	67	33	67	0	0	1.081	2.0	0	0	0	0	186
MEAN	270	297						1.079						
LSD _{0.05}	68	72						0.004						* Two-Year Average

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

³QUALITY: 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 25, 2007 (141 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	PERCENT (%) TUBER QUALITY ³					MAT ⁵	3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	SCAB ⁴		US#1
FL1879	394	406	97	3	74	23	0	1.071	1.0	43	13	0	0	2.0	1.3	348
MSJ036-A [†]	383	422	91	9	86	5	0	1.075	ND	5	8	3	3	0.8	2.8	-
Snowden	359	392	91	9	79	12	0	1.072	1.0	30	27	0	0	2.6	2.0	318
MSN105-1 ^{LBR}	354	396	90	10	81	8	0	1.077	ND	0	0	0	0	2.0	1.3	266*
MSJ316-A	345	384	90	10	77	13	0	1.077	1.0	8	5	3	0	1.9	4.8	306
MSM171-A ^{LBR}	344	376	92	5	66	26	3	1.058	ND	10	0	0	0	1.3	1.0	295*
FL2053	327	377	87	7	73	14	6	1.087	1.0	23	3	0	0	1.8	1.0	290*
Atlantic	322	340	95	4	76	19	1	1.081	1.0	38	8	0	0	2.4	1.5	315
Beacon Chipper	315	326	97	3	71	25	0	1.076	1.0!	40	10	0	0	1.8	3.0	343
FL2101	310	355	87	12	82	6	1	1.083	1.0!	25	5	0	0	1.5	1.8	-
MSH228-6	309	349	89	11	86	3	0	1.077	1.0!	0	5	0	0	1.5	3.5	247
MSJ126-9Y	282	300	94	6	76	18	0	1.070	1.0	5	5	0	0	1.3	1.3	252*
MSK061-4	269	323	83	15	78	5	2	1.076	1.0!	0	33	0	0	1.0	2.0	221
Pike	261	296	88	12	87	2	0	1.076	1.0	0	10	0	0	1.4	2.0	215
MSN191-2Y	241	273	88	12	80	8	0	1.084	1.0	3	0	0	3	1.5	1.3	-
MSK409-1	215	258	83	16	76	7	1	1.081	1.0!	3	13	3	0	0.8	1.0	202*
MSJ147-1	155	288	54	46	54	0	0	1.082	1.0!	7	7	0	0	1.0	2.5	216
MEAN	305	345						1.077								
LSD _{0.05}	69	72						0.003								* Two-Year Average

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

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

⁵MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

[†]MSJ036-A had a poor stand count in DOH, data from the Transgenic Trial.

Table 3

ROUND WHITE TRIAL
MONTCALM RESEARCH FARM
May 8 to September 18, 2007 (134 days)

LINE	CWT/A		PERCENT OF TOTAL ¹						CHIP SCORE ²	PERCENT (%) TUBER QUALITY ³					SCAB ⁴	MAT ⁵	3-YR AVG	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP		GR	HH	VD	IBS	BC			US#1	CWT/A
W2324-1 ^{NCR}	455	556	82	5	79	3	13	1.079	1.5	20	28	0	0	2.5	3.5	494*		
CO96141-4W	386	417	92	7	84	8	1	1.069	1.0	3	10	3	0	2.3	1.0	-		
MSJ316-A ^{NCR}	379	423	90	10	80	10	1	1.079	1.5	25	10	0	0	2.0	4.5	-		
Snowden^{NCR}	368	433	85	11	82	3	4	1.074	2.0	13	58	0	3	2.6	2.5	378		
NY139	363	394	92	7	88	4	1	1.076	2.5	0	20	0	0	1.5	2.8	-		
W2564-2	350	402	87	5	63	24	8	1.067	2.5	43	0	0	0	1.0	4.5	-		
W2133-1 ^{NCR}	336	383	88	11	85	2	1	1.075	1.0	0	8	3	0	1.8	3.5	308		
MSI005-20Y ^{NCR}	329	393	84	8	70	13	8	1.064	ND	0	8	0	0	2.0	1.8	355		
CO97043-14W	303	341	89	11	80	9	0	1.073	1.0	0	15	0	3	3.0	1.5	-		
AC97097-14W	299	365	82	14	75	7	4	1.077	1.0	28	10	0	0	3.3	2.0	-		
NorValley^{NCR}	281	350	80	17	76	5	2	1.068	1.5	3	13	0	0	2.0	1.3	304*		
Atlantic^{NCR}	273	322	85	9	74	11	6	1.078	1.0	30	18	3	5	2.5	1.8	331		
W2978-3	255	319	80	19	78	2	1	1.067	1.0	0	5	0	0	1.5	1.0	-		
CO97065-7W	249	293	85	14	84	1	1	1.075	1.0	0	0	0	0	2.0	1.3	-		
W2310-3	247	326	76	23	76	0	1	1.082	1.0	0	0	0	0	2.0	2.0	231		
CO95051-7W	215	264	81	17	78	3	2	1.077	1.0	0	23	0	0	1.5	3.0	212		
W4016-4	214	270	80	20	79	1	1	1.072	1.5	5	10	0	0	2.7	3.5	-		
MEAN	312	368						1.074										
LSD _{0.05}	71	68						0.003								* Two-Year Average		

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

^{NCR} North Central Regional Entry

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

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

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

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

⁵MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 4

**RUSSET and LONG TYPES TRIAL
MONTCALM RESEARCH FARM
May 8 to September 11, 2007 (127 days)**

LINE	CWT/A		PERCENT OF TOTAL ¹						PERCENT (%) TUBER QUALITY ²						3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB ³	MAT ⁴	US#1
															CWT/A
W5716-1RUS	316	388	82	15	71	10	3	1.073	10	8	3	0	1.0	3.8	-
W3328-1RUS	306	396	77	16	66	11	7	1.065	8	8	0	0	1.0	3.3	318*
CORN-3	287	376	76	16	64	13	7	1.070	53	3	3	0	1.5	3.5	-
MSA8254-2BRUS ^{NCR}	285	368	77	14	62	16	8	1.064	28	5	3	0	0.5	3.2	303
AND98324-1RUS ^{NCR}	276	340	81	15	71	10	4	1.077	43	28	0	0	3.0	3.0	310*
MSL794-BRUS ^{LBR}	265	353	75	20	62	13	5	1.073	0	5	8	0	1.8	3.3	328
W2683-2RUS ^{NCR}	263	359	73	22	65	9	5	1.067	3	13	3	0	0.5	3.8	275
CO95086-8RUS	261	322	81	15	69	12	4	1.066	5	18	0	0	0.0	2.3	266*
A95109-1	255	320	80	14	64	15	7	1.067	3	15	0	0	0.8	2.5	259*
CO97087-2RUS	251	381	66	23	58	7	11	1.074	3	10	0	0	0.5	2.0	-
Canela	239	294	81	15	74	8	3	1.077	3	20	0	0	0.3	2.8	-
A93157-6LS	237	305	78	17	69	9	6	1.075	48	8	3	0	1.0	3.8	235*
ND7882B-7RUS	219	325	67	28	63	5	5	1.070	0	8	3	0	0.7	2.3	233*
Russet Burbank^{NCR}	195	334	58	24	57	2	17	1.071	13	10	0	0	1.0	3.0	219*
W1879-1RUS ^{NCR}	185	287	64	34	57	7	2	1.070	5	8	0	0	0.8	1.3	153
CORN-8	179	280	64	31	59	5	5	1.066	0	10	0	0	2.3	1.5	-
Russet Norkotah^{NCR}	156	250	62	35	59	3	2	1.065	3	0	0	0	2.0	1.0	151
AOA95154-1	144	231	62	37	59	3	1	1.077	0	23	0	0	0.5	3.7	-
MEAN	240	328						1.070							
LSD _{0.05}	83	82						0.003							* Two-Year Average

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

^{NCR} North Central Regional Entry

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

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

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

⁴MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 5

RED-SKINNED TABLESTOCK TRIAL
MONTCALM RESEARCH FARM
May 8 to September 11, 2007 (127 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS			BC
Red Pontiac	456	535	85	9	69	16	6	1.056	20	5	0	0	3.0	2.0
ATND98459-1RY	326	398	82	16	80	2	2	1.068	0	0	0	0	2.0	2.0
Michigan Purple	312	363	86	8	73	13	6	1.061	3	3	0	0	2.3	1.3
Rio Colorado	310	366	85	13	77	7	2	1.063	13	3	0	0	1.5	1.0
ND5002-3R ^{NCR}	251	317	79	20	76	3	1	1.059	0	8	0	0	0.3	3.5
MSQ441-6R	246	276	89	10	85	4	0	1.053	0	0	0	0	2.0	1.3
W2609-1R	213	251	85	14	84	1	1	1.055	0	3	0	0	0.8	1.0
Red Norland^{NCR}	213	241	88	9	88	0	3	1.053	0	0	0	0	1.5	1.5
W3882-1R	206	249	83	16	83	0	1	1.055	5	8	0	0	1.0	1.0
ND4659-5R ^{NCR}	202	244	83	16	78	5	1	1.060	0	0	0	0	0.5	1.0
MSL228-1	180	217	83	8	80	3	9	1.072	0	10	0	0	ND	1.3
MEAN	265	314						1.060						
LSD _{0.05}	58	61						0.003						

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

^{NCR} North Central Regional Entry

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

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

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

⁴MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 6

ADAPTATION TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 8 to September 25, 2007 (141 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	PERCENT (%) TUBER QUALITY ³					
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	SCAB ⁴	MAT ⁵
MSJ461-1 ^{LBR}	425	472	90	9	79	11	1	1.075	1.0	0	5	10	0	1.8	3.7
Snowden	380	422	90	9	83	7	1	1.080	1.0	18	63	3	3	2.6	2.3
MSQ070-1 ^{LBR}	369	433	85	14	80	5	1	1.089	1.0	8	8	10	0	0.8	4.8
MSQ089-1	326	370	88	10	76	12	2	1.073	1.5	0	8	0	0	1.0	3.3
MSQ029-1 ^{LBR,PVYR}	322	348	93	7	73	19	0	1.081	1.0	20	13	0	0	1.3	4.0
MSQ108-1	314	343	91	7	83	9	1	1.079	1.5	5	10	0	0	2.0	1.5
MSL292-A	279	316	88	9	71	17	3	1.073	1.0!	8	5	0	0	2.3	1.5
MSN238-A	278	300	93	7	85	8	0	1.080	1.5	13	10	0	0	1.3	2.0
Atlantic	276	303	91	5	79	12	4	1.081	1.5	30	13	3	0	2.4	1.5
MSL268-D ^{LBR}	270	336	80	15	75	5	5	1.072	1.0	0	20	0	0	1.5	2.5
MSQ492-2 ^{LBR}	262	321	82	17	78	4	1	1.069	1.5	0	13	18	0	1.3	3.3
MSM246-B	258	292	88	10	80	8	1	1.081	1.0!	3	13	0	0	2.3	2.0
MSM060-3	255	305	84	16	80	3	0	1.088	1.0	5	23	3	0	1.8	1.4
Pike	252	285	88	11	85	3	1	1.082	1.0	3	10	0	0	1.4	2.5
MSN099-B	247	281	88	8	71	17	4	1.069	1.0	10	8	0	3	1.8	1.5
MSP516-A ^{LBR}	235	276	85	12	81	4	3	1.071	1.0!	0	25	0	0	1.0	3.0
MSN313-A	230	330	70	20	68	2	10	1.078	1.5	5	3	0	0	1.8	3.5
MSN190-2	162	240	68	30	64	4	2	1.082	1.5	5	3	0	0	1.3	1.0
MSM102-A	147	173	84	14	79	5	2	1.078	1.0	0	0	0	0	2.0	1.7
MEAN	278	323						1.078							
LSD _{0.05}	71	72						0.005							

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

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

⁵MATURITY RATING: August 23, 2007; 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
MONTCALM RESEARCH FARM
May 8 to September 18, 2007 (134 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					PERCENT (%) TUBER QUALITY ²						
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB ³	MAT ⁴
Boulder	440	460	96	2	50	46	2	1.076	3	0	0	0	1.8	3.3
MSK498-1Y	426	466	92	7	81	10	1	1.064	0	28	0	0	2.0	3.3
MSM070-1	389	439	89	7	80	9	4	1.072	8	13	0	0	1.5	1.0
MSN170-A	378	408	93	5	84	9	2	1.076	0	13	0	0	1.3	1.5
MSL183-AY ^{LBR}	317	358	88	10	85	4	2	1.061	0	10	0	0	2.8	1.0
MSN084-3	315	332	95	5	82	13	0	1.056	0	23	0	0	3.0	1.0
MSM182-1 ^{LBR,PVYR}	306	355	86	13	85	1	1	1.067	0	5	0	0	2.0	2.5
MSQ425-4Y	282	349	81	19	80	0	0	1.064	0	15	0	0	3.0	1.3
MSM137-2 ^{LBR}	264	323	82	13	79	3	5	1.064	0	3	0	0	2.3	2.3
Yukon Gold	245	272	90	6	77	13	4	1.070	15	8	3	0	2.8	1.0
MSQ176-5 ^{LBR}	239	263	91	8	69	22	1	1.060	13	10	3	0	2.0	3.8
Jacqueline Lee ^{LBR}	234	425	55	42	55	0	3	1.075	0	3	0	0	2.3	3.0
MSL106-AY ^{LBR}	225	264	85	13	83	3	2	1.060	0	3	0	0	2.8	1.0
MSQ440-2 ^{LBR}	192	212	91	9	83	8	1	1.053	0	23	0	0	1.0	1.3
MEAN	304	352						1.066						
LSD _{0.05}	69	66						0.004						

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

⁴MATURITY RATING: August 23, 2007; 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 19, 2007 (135 days)

LINE	CWT/A		PERCENT OF TOTAL ¹							CHIP SCORE ²	PERCENT (%) TUBER QUALITY ³					
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH		VD	IBS	BC	SCAB ⁴	MAT ⁵	
MSQ341-BY	401	439	91	8	81	10	1	1.074	1.5	0	15	5	5	1.5	2.0	
MSR127-2	373	408	92	8	84	8	0	1.079	1.0	0	0	0	0	1.0	4.0	
Snowden	360	411	88	12	85	3	1	1.074	1.0	20	45	10	0	2.6	3.0	
MSM205-A	352	428	82	11	81	2	7	1.080	1.5	0	20	0	0	1.3	2.0	
Atlantic	346	364	95	3	86	9	1	1.083	1.5	20	20	0	0	2.5	2.0	
MSR159-19 ^{LBR}	341	381	90	8	71	19	2	1.070	1.0	30	10	0	0	1.5	2.0	
MSR160-2Y ^{LBR PVYR}	335	430	78	22	78	0	1	1.082	1.5	5	0	0	0	1.3	2.5	
MSR036-5 ^{LBR}	326	359	91	7	80	11	2	1.081	1.5	0	10	0	0	1.0	4.5	
MSR156-7	322	348	93	7	89	4	1	1.082	1.0	0	10	0	0	1.8	3.0	
MSR061-1 ^{LBR PVYR}	321	370	87	13	86	1	0	1.073	1.0	0	5	0	0	1.0	3.0	
MSP459-5	312	375	83	13	81	3	3	1.072	1.0	25	10	0	0	1.0	1.0	
MSQ035-3 ^{LBR}	312	358	87	10	79	8	3	1.068	ND	5	5	0	0	1.5	4.0	
MSP497-1	311	351	89	9	73	15	3	1.064	1.0	25	0	0	0	1.8	3.0	
MSR159-10	311	345	90	8	79	11	1	1.078	1.5	5	0	15	0	1.8	4.5	
MSN148-A	302	370	82	17	80	2	1	1.083	1.0!	0	20	0	0	-	2.0	
MSR131-5	302	348	87	13	87	0	0	1.083	1.0	0	15	0	0	1.0	3.0	
MSQ134-5 ^{LBR}	298	343	87	13	87	0	0	1.065	1.5	0	5	0	0	1.5	2.5	
MSR159-06	282	322	88	12	79	9	0	1.070	1.0	0	0	0	0	1.7	1.0	
MSR090-1Y	272	292	93	4	63	30	3	1.067	1.5	0	0	5	0	3.0	3.0	
MSP102-5	272	406	67	28	67	0	5	1.087	2.0	0	0	0	0	1.5	2.5	
ND7519-1	271	313	87	11	86	1	3	1.079	1.0	0	30	5	10	2.0	1.0	
MSR159-07Y	266	317	84	15	81	3	2	1.086	1.0	5	0	0	0	1.7	1.0	
MSR167-3Y	246	303	81	16	80	2	3	1.072	1.5	30	0	0	0	1.0	2.5	
MSR128-4Y	243	298	81	15	77	4	4	1.078	1.5	5	5	0	0	1.0	3.5	
MSR102-3 ^{LBR}	225	263	86	11	68	17	3	1.076	1.5	5	10	0	0	0.5	5.0	

continued on next page:

**PRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 8 to September 19, 2007 (135 days)**

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	PERCENT (%) TUBER QUALITY ³					
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	SCAB ⁴	MAT ⁵
continued:															
MSQ130-4 ^{LBR}	220	246	89	11	74	16	0	1.070	1.0	40	0	15	0	1.5	1.0
MSR041-5 ^{LBR}	218	254	86	14	81	5	0	1.076	1.5	0	10	0	0	1.0	3.0
MSR125-1	216	237	91	8	89	2	1	1.082	1.0	0	5	0	0	1.3	1.0
MSR130-1	209	253	83	14	83	0	3	1.075	1.0	0	10	0	0	1.0	3.0
MSR049-4	205	246	83	15	83	0	1	1.067	1.0	0	0	0	0	2.0	3.5
MSP408-10Y ^{LBR}	201	268	75	23	75	0	2	1.070	2.0	0	5	0	0	0.8	3.5
MSN073-2	188	232	81	15	79	2	4	1.069	1.5	5	0	0	0	1.0	1.5
MSP115-3	168	207	81	15	80	1	4	1.084	1.5	65	15	0	0	2.0	5.0
ND8305-1	164	236	69	29	69	0	1	1.083	1.0	10	5	0	0	2.0	1.0
MSP292-7	161	202	80	13	77	3	7	1.073	1.5	5	0	0	0	1.0	1.0
ND6095-1	160	273	59	39	59	0	2	1.070	1.0	0	25	0	0	2.7	1.0
MSR089-14Y	145	218	66	32	65	1	2	1.076	1.5	0	30	0	0	2.3	1.0
MSR089-9 ^{LBR}	124	178	70	23	63	6	8	1.077	1.0	0	10	0	0	2.0	2.3
ND8304-2	115	179	64	34	64	0	1	1.067	ND	0	25	0	0	2.5	1.0
MEAN	261	312						1.076							
LSD _{0.05}	90	96						0.005							

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

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

⁵MATURITY RATING: August 23, 2007; 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 Septmeber 11, 2007 (127 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					PERCENT (%) TUBER QUALITY ³					SCAB ⁴	MAT ⁵
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC		
MSS582-1	517	577	90	4	72	17	6	1.064	0	15	0	0	2.0	2.0
MSM224-1	422	487	87	10	78	9	3	1.063	10	0	0	0	1.8	3.5
MI Purple Red Sport	398	451	88	7	72	16	4	1.056	5	0	0	0	ND	1.0
Reba	383	401	95	5	68	28	0	1.059	40	5	0	0	1.8	3.0
MSR081-14	369	439	84	15	79	6	1	1.054	5	10	0	0	2.0	4.5
MSR051-1	358	406	88	11	85	3	1	1.059	0	5	0	0	2.0	4.5
MSR158-4	356	415	86	14	75	11	0	1.071	0	20	0	0	2.3	4.0
MSQ461-2PP	345	387	89	9	80	10	2	1.067	0	0	0	0	1.3	2.0
MSR605-15	341	426	80	18	71	9	2	1.057	10	0	0	0	2.0	3.5
MSP084-3 ^{CPBMR}	340	395	86	9	86	0	5	1.084	10	10	5	10	2.3	2.0
MSR214-2P	323	372	87	9	87	0	4	1.057	0	5	0	0	2.0	4.5
MSM183-1 ^{LBR}	301	393	76	20	73	3	3	1.073	0	5	0	0	2.5	4.5
MSR159-2 ^{LBR}	299	360	83	15	78	5	2	1.076	15	10	0	0	1.3	5.0
MSR161-2	297	350	85	10	80	5	6	1.073	10	5	0	0	1.0	4.5
MSP197-1	296	350	85	8	72	13	7	1.063	30	10	5	0	2.3	1.0
MSQ505-4	286	334	86	9	56	30	5	1.058	5	0	0	0	2.0	4.0
MSM288-2Y	286	356	80	18	77	3	1	1.066	0	0	0	0	1.3	1.0
MSQ086-3 ^{LBR}	284	321	88	11	85	3	0	1.068	30	10	0	0	2.0	3.0
NY121 ^{LBR}	280	399	70	28	67	4	2	1.070	15	0	0	0	2.0	1.0
Eden	280	374	75	18	75	0	7	1.066	10	0	0	0	3.0	1.5
Mnandi ^{LBR}	275	359	77	21	74	2	2	1.061	0	5	0	0	2.0	2.5
MSQ279-1	273	296	92	3	71	21	5	1.065	5	0	0	0	1.8	3.5
Darius	253	324	78	19	74	4	4	1.071	25	20	5	5	2.0	3.5
Calibra	224	259	87	13	76	11	0	1.073	35	20	0	0	1.0	4.0
Van der Plank	219	278	79	14	68	11	7	1.055	5	35	0	0	2.5	2.5

continued on next page:

**PRELIMINARY TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 8 to Septmeber 11, 2007 (127 days)**

LINE	CWT/A		PERCENT OF TOTAL ¹					PERCENT (%) TUBER QUALITY ³					SCAB ⁴	MAT ⁵
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC		
continued:														
Caren	216	282	77	12	77	0	12	1.073	0	5	20	0	1.5	4.0
MSR157-1Y	212	248	85	15	80	6	0	1.063	10	5	0	0	1.3	2.5
BP-1	211	294	72	28	70	2	0	1.061	50	0	0	0	2.8	4.5
MSR186-3P	208	270	77	14	71	6	9	1.054	0	10	5	0	1.3	2.3
Devlin	207	243	85	13	80	5	1	1.076	25	20	0	0	2.3	2.5
MSQ558-2RR	181	311	58	42	58	0	0	1.064	0	0	5	0	2.0	1.0
MSR217-1R	174	227	77	17	72	5	6	1.056	0	15	0	0	1.5	1.0
MSQ443-1RR	114	149	77	22	77	0	1	1.075	10	0	0	0	1.0	5.0
Esco	108	172	63	26	63	0	11	1.055	0	5	0	0	2.3	5.0
Ronn	89	161	55	37	55	0	7	1.061	5	20	0	0	1.7	5.0
MSQ437-2PP	81	169	48	24	48	0	28	1.059	5	0	0	0	1.3	4.0
MEAN	272	334						1.065						
LSD _{0.05}	145	161						0.009						

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

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

⁵MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 10

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

TRANSGENIC TRIAL
MONTCALM RESEARCH FARM
May 17 to September 6, 2007 (113 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					PERCENT (%) TUBER QUALITY ²					MAT ³
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	
MSJ036-A	383	422	91	9	86	5	0	1.075	5	8	3	3	2.8
Spunta RB	321	374	86	8	62	23	6	1.057	0	78	8	3	2.8
NO8.28	306	321	95	4	87	9	0	1.061	0	15	0	0	2.3
NO8.8	296	308	96	4	83	13	0	1.063	0	10	0	3	2.0
MSR605-15	267	329	81	17	75	6	2	1.062	0	10	0	0	3.3
MSR605-08	255	290	88	8	79	9	4	1.058	0	20	3	3	1.0
MSR606-10	251	321	78	16	74	4	6	1.069	13	20	0	0	3.0
MSR606-08	246	381	65	34	64	0	2	1.072	0	18	55	0	1.5
MSR606-09	221	288	77	20	73	4	3	1.066	0	20	0	0	2.3
MSR605-17	197	253	78	15	73	5	7	1.070	0	25	0	3	3.0
MSR605-01	187	225	83	11	80	3	6	1.062	3	3	0	0	2.3
MSR605-14	185	217	86	10	85	1	4	1.063	0	3	0	0	1.5
MSR606-05	178	219	81	13	72	10	5	1.059	0	8	0	0	1.0
MSR605-07	177	210	84	12	78	7	3	1.058	0	0	17	13	2.7
MSR605-04	171	221	77	17	73	5	5	1.063	0	20	10	0	2.7
YG8.8	170	189	90	9	87	3	1	1.071	3	13	0	0	1.0
MSR605-05	144	204	70	29	70	0	1	1.065	0	5	5	0	1.0
MSR605-10	141	177	79	21	78	1	0	1.066	0	0	0	0	2.3
MSR606-02	138	182	76	23	71	4	1	1.059	0	15	0	0	1.5
MSR605-02	137	194	71	25	71	0	4	1.056	0	13	0	3	1.3
MSR606-03	130	194	67	30	65	2	3	1.059	0	13	0	0	1.0
MSR606-06	99	177	56	40	56	0	3	1.056	0	3	0	3	1.0
MEAN	209	259						1.063					
LSD _{0.05}	73	79						0.003					

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

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

³MATURITY RATING: August 23, 2007; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Table 11

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2005-2007 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI

LINE	3-YR* AVG.	2007 RATING	2007 WORST	2007 N	2006 RATING	2006 WORST	2006 N	2005 RATING	2005 WORST	2005 N
<i>Sorted by ascending 2007 Rating;</i>										
CO95086-8RUS	0.4	0.0	0	4	0.3	1	4	1.0	1	3
Canela	-	0.3	1	4	-	-	-	-	-	-
ND5002-3R ^{NCR}	0.6*	0.3	1	4	1.0	1	4	-	-	-
AOA95154-1	-	0.5	1	4	-	-	-	-	-	-
CO97087-2RUS	-	0.5	1	4	-	-	-	-	-	-
MSA8254-2BRUS	0.2	0.5	1	4	0.0	0	4	0.0	0	5
MSR102-3	-	0.5	1	2	-	-	-	-	-	-
ND4659-5R	-	0.5	1	4	-	-	-	-	-	-
W2683-2RUS ^{NCR}	0.4	0.5	1	8	0.3	1	4	0.3	1	6
A95109-1	0.8	0.7	1	3	1.7	3	3	0.0	0	4
ND7882B-7RUS ^{NCR}	0.7*	0.7	1	3	0.8	1	4	-	-	-
MSJ036-A	0.9	0.8	1	4	1.2	2	3	0.8	1	4
MSK409-1	0.8	0.8	1	4	1.0	1	4	0.7	1	3
MSP408-10Y	1.2	0.8	1	4	1.8	2	3	1.0	2	4
MSQ070-1 ^{LBR}	-	0.8	1	4	-	-	-	-	-	-
W1879-1RUS ^{NCR}	0.4	0.8	1	4	0.3	3	4	0.3	1	3
W2609-1R	-	0.8	1	4	-	-	-	-	-	-
A93157-6LS	1.0	1.0	2	4	1.4	3	4	0.8	2	4
Calibra	-	1.0	1	1	-	-	-	-	-	-
MSJ147-1	1.6	1.0	1	4	1.8	2	4	2.0	2	4
MSK061-4	1.0	1.0	1	4	1.3	2	3	0.8	1	4
MSN073-2	1.3	1.0	1	4	1.3	2	4	1.5	2	2
MSP292-7	1.2	1.0	1	4	1.7	2	3	1.0	1	4
MSP459-5	1.4	1.0	1	4	2.0	2	4	1.3	2	3
MSP516-A ^{LBR}	1.0*	1.0	1	4	1.0	1	1	-	-	-
MSQ089-1	-	1.0	1	3	-	-	-	-	-	-
MSQ289-5	0.8*	1.0	1	4	0.5	1	4	-	-	-
MSQ440-2	1.4*	1.0	1	4	1.8	2	4	-	-	-
MSQ443-1RR	-	1.0	3	4	-	-	-	-	-	-
MSR036-5	-	1.0	1	3	-	-	-	-	-	-
MSR041-5	-	1.0	1	2	-	-	-	-	-	-
MSR061-1	-	1.0	1	4	-	-	-	-	-	-
MSR127-2	-	1.0	1	3	-	-	-	-	-	-
MSR128-4Y	-	1.0	1	3	-	-	-	-	-	-
MSR130-1	-	1.0	1	2	-	-	-	-	-	-
MSR131-5	-	1.0	1	1	-	-	-	-	-	-
MSR161-2	-	1.0	1	3	-	-	-	-	-	-
MSR167-3Y	-	1.0	1	1	-	-	-	-	-	-
Russet Burbank^{NCR}	1.6*	1.0	1	4	2.3	2	4	-	-	-
W2564-2	-	1.0	1	4	-	-	-	-	-	-
W3328-1RUS	1.3*	1.0	2	4	1.5	2	4	-	-	-
W3882-1R	-	1.0	1	4	-	-	-	-	-	-
W5716-1RUS	-	1.0	2	4	-	-	-	-	-	-

**2005-2007 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI**

LINE	3-YR* AVG.	2007 RATING	2007 WORST	2007 N	2006 RATING	2006 WORST	2006 N	2005 RATING	2005 WORST	2005 N
<i>Sorted by ascending 2007 Rating:</i>										
MSJ126-9Y	1.3	1.3	2	4	1.5	2	4	1.0	1	3
MSM046-4	-	1.3	2	4	-	-	-	-	-	-
MSM058-A	1.0	1.3	2	4	1.0	1	4	0.8	1	4
MSM171-A ^{LBR}	1.2	1.3	2	4	1.3	2	4	1.0	1	3
MSM205-A	-	1.3	2	4	-	-	-	-	-	-
MSM288-2Y	-	1.3	2	4	-	-	-	-	-	-
MSN170-A	-	1.3	2	4	-	-	-	-	-	-
MSN190-2	1.4	1.3	2	4	1.6	2	4	1.3	2	4
MSN238-A	1.3	1.3	2	4	1.5	2	4	1.0	1	4
MSQ461-2PP	-	1.3	2	4	-	-	-	-	-	-
MSQ492-2 ^{LBR}	1.5*	1.3	2	4	1.8	2	3	-	-	-
MSR066-1	-	1.3	2	4	-	-	-	-	-	-
MSR157-1Y	-	1.3	2	4	-	-	-	-	-	-
MSR159-2	-	1.3	2	4	-	-	-	-	-	-
MSR160-2Y	-	1.3	2	4	-	-	-	-	-	-
MSQ029-1 ^{LBR}	1.7*	1.3	2	3	2.0	2	1	-	-	-
MSQ437-2PP	-	1.3	2	3	-	-	-	-	-	-
MSR125-1	-	1.3	2	3	-	-	-	-	-	-
MSR186-3P	-	1.3	2	3	-	-	-	-	-	-
Pike	1.2	1.4	2	8	1.4	2	7	1.0	1	8
Caren	1.8*	1.5	2	4	2.0	2	4	-	-	-
CO95051-7W	1.1	1.5	2	4	1.4	2	4	0.5	1	2
CORN-3	-	1.5	2	4	-	-	-	-	-	-
FL2101	-	1.5	3	4	-	-	-	-	-	-
MSH228-6	1.3	1.5	2	4	1.4	2	4	1.0	1	4
MSL183-AY ^{LBR}	2.2	1.5	2	2	3.0	3	3	2.0	2	4
MSL268-D ^{LBR}	1.6	1.5	2	4	2.3	3	4	1.0	2	4
MSM070-1	-	1.5	2	4	-	-	-	-	-	-
MSN191-2Y	1.8	1.5	2	4	2.5	3	4	1.5	2	2
MSP102-5	-	1.5	2	4	-	-	-	-	-	-
MSQ035-2 ^{LBR}	2.3*	1.5	2	2	3.0	3	2	-	-	-
MSQ130-4	-	1.5	2	4	-	-	-	-	-	-
MSQ134-5	-	1.5	2	4	-	-	-	-	-	-
MSQ341-BY	-	1.5	3	2	-	-	-	-	-	-
MSR090-1Y	-	1.5	3	4	-	-	-	-	-	-
MSR159-19	-	1.5	2	4	-	-	-	-	-	-
MSR217-1R	-	1.5	2	2	-	-	-	-	-	-
NY139	-	1.5	2	4	-	-	-	-	-	-
Red Norland^{NCR}	1.3*	1.5	3	4	1.0	2	4	-	-	-
Rio Colorado	-	1.5	2	4	-	-	-	-	-	-
W2978-3	-	1.5	2	4	-	-	-	-	-	-
MSM183-1	-	1.7	3	3	-	-	-	-	-	-
MSR159-06	-	1.7	2	3	-	-	-	-	-	-
MSR159-07Y	-	1.7	2	3	-	-	-	-	-	-
Ronn	-	1.7	3	3	-	-	-	-	-	-

**2005-2007 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI**

LINE	3-YR* AVG.	2007 RATING	2007 WORST	2007 N	2006 RATING	2006 WORST	2006 N	2005 RATING	2005 WORST	2005 N
<i>Sorted by ascending 2007 Rating:</i>										
A96517-2	-	1.8	3	4	-	-	-	-	-	-
Beacon Chipper	1.5	1.8	2	4	1.8	2	4	1.0	1	4
Boulder	1.7*	1.8	2	4	1.6	2	4	-	-	-
FL2053	2.1*	1.8	2	4	2.5	3	4	-	-	-
MSJ143-4	-	1.8	2	4	-	-	-	-	-	-
MSJ461-1 ^{LBR}	1.6	1.8	3	4	1.8	2	4	1.3	2	7
MSL794-BRUS ^{LBR}	1.8	1.8	3	4	2.5	3	4	1.3	2	4
MSM060-3	1.5	1.8	2	4	1.8	2	3	1.0	1	4
MSM224-1	-	1.8	3	4	-	-	-	-	-	-
MSN099-B	1.4	1.8	2	4	1.3	2	4	1.3	2	4
MSN313-A	1.9	1.8	2	4	3.0	3	4	1.0	2	4
MSP497-1	-	1.8	2	4	-	-	-	-	-	-
MSQ279-1	-	1.8	3	4	-	-	-	-	-	-
MSR089-9	-	1.8	3	4	-	-	-	-	-	-
MSR156-7	-	1.8	2	4	-	-	-	-	-	-
MSR159-10	-	1.8	3	4	-	-	-	-	-	-
Reba	-	1.8	2	4	-	-	-	-	-	-
W2133-1 ^{NCR}	1.6	1.8	2	4	2.0	2	4	1.0	1	4
MSJ316-A	1.5	1.9	3	8	1.6	2	4	1.0	1	4
ATND98459-1RY	-	2.0	2	4	-	-	-	-	-	-
CO97065-7W	-	2.0	2	4	-	-	-	-	-	-
Darius	2.3*	2.0	3	4	2.5	3	2	-	-	-
FL1879	2.3	2.0	2	4	2.6	3	4	2.3	3	3
Mnandi	-	2.0	2	1	-	-	-	-	-	-
MSI005-20Y ^{NCR}	1.9	2.0	2	4	2.5	3	4	1.3	2	4
MSK498-1Y	1.9	2.0	3	4	2.0	2	4	1.8	2	4
MSM102-A	1.5	2.0	2	4	1.6	2	4	1.0	1	4
MSM182-1 ^{LBR}	2.1	2.0	3	4	2.7	3	3	1.8	2	4
MSN105-1 ^{LBM}	1.5	2.0	3	4	1.5	2	2	1.0	1	3
MSP115-3	-	2.0	3	4	-	-	-	-	-	-
MSQ086-3 ^{LBR}	1.5*	2.0	2	4	1.0	1	4	-	-	-
MSQ108-1 ^{LBR}	2.2*	2.0	2	4	2.3	3	3	-	-	-
MSQ176-5 ^{LBR}	2.3*	2.0	2	4	2.5	3	2	-	-	-
MSQ441-6R	2.5*	2.0	2	3	3.0	3	2	-	-	-
MSQ505-4	-	2.0	3	4	-	-	-	-	-	-
MSQ558-2RR	-	2.0	3	4	-	-	-	-	-	-
MSR049-4	-	2.0	3	4	-	-	-	-	-	-
MSR051-1	-	2.0	3	4	-	-	-	-	-	-
MSR081-14	-	2.0	3	4	-	-	-	-	-	-
MSR089-14Y	-	2.0	3	4	-	-	-	-	-	-
MSR214-2P	-	2.0	2	4	-	-	-	-	-	-
MSR605-15	-	2.0	3	4	-	-	-	-	-	-
MSS582-1	-	2.0	3	5	-	-	-	-	-	-
ND7519-1	-	2.0	2	4	-	-	-	-	-	-

**2005-2007 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, EAST LANSING, MI**

LINE	3-YR* AVG.	2007 RATING	2007 WORST	2007 N	2006 RATING	2006 WORST	2006 N	2005 RATING	2005 WORST	2005 N
<i>Sorted by ascending 2007 Rating:</i>										
ND8305-1	-	2.0	3	3	-	-	-	-	-	-
NorValley ^{NCR}	2.5*	2.0	3	4	3.0	3	4	-	-	-
NY121	-	2.0	2	1	-	-	-	-	-	-
Russet Norkotah ^{NCR}	1.8	2.0	3	4	2.2	3	3	1.3	2	4
W2310-3	1.8	2.0	3	4	1.8	3	4	1.5	2	4
CO96141-4W	-	2.3	3	4	-	-	-	-	-	-
CORN-8	-	2.3	3	4	-	-	-	-	-	-
Devlin	2.2*	2.3	3	4	2.2	3	3	-	-	-
Esco	2.1*	2.3	3	4	2.0	2	1	-	-	-
Jacqueline Lee ^{LBR}	2.3*	2.3	3	4	-	-	-	2.3	3	4
Michigan Purple	2.2	2.3	3	4	2.8	3	4	1.5	2	6
MSL292-A	1.9	2.3	3	4	2.5	3	4	1.0	1	3
MSM137-2	-	2.3	3	4	-	-	-	-	-	-
MSM246-B	1.9	2.3	3	4	2.4	4	4	1.0	2	4
MSP084-3	-	2.3	3	4	-	-	-	-	-	-
MSP197-1	2.3	2.3	3	4	3.0	3	4	1.5	2	4
MSR158-4	-	2.3	3	4	-	-	-	-	-	-
Saginaw Gold	2.3*	2.3	3	4	2.3	3	4	-	-	-
Atlantic	2.3	2.4	3	16	2.8	3	16	1.6	2	11
ND8304-2	-	2.5	3	4	-	-	-	-	-	-
Van der Plank	-	2.5	3	2	-	-	-	-	-	-
W2324-1 ^{NCR}	2.6*	2.5	3	4	2.6	3	4	-	-	-
Snowden ^{NCR}	2.5	2.6	3	18	2.8	3	16	2.0	3	12
W4016-4	-	2.7	3	3	-	-	-	-	-	-
BP-1	2.5*	2.8	3	4	2.3	3	4	-	-	-
MSL106-AY	-	2.8	3	4	-	-	-	-	-	-
ND6095-1	-	2.8	3	4	-	-	-	-	-	-
Yukon Gold	-	2.8	3	4	-	-	-	-	-	-
AND98324-1RUS	3.0*	3.0	3	1	3.0	4	4	-	-	-
CO97043-14W	-	3.0	4	4	-	-	-	-	-	-
Eden	2.8*	3.0	4	4	2.5	3	4	-	-	-
MSN084-3	2.6	3.0	3	1	2.5	3	4	2.3	3	4
MSQ425-4Y	-	3.0	3	1	-	-	-	-	-	-
Red Pontiac	-	3.0	3	4	-	-	-	-	-	-
AC97097-14W	-	3.3	4	3	-	-	-	-	-	-

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

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

^{LBR} Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

^{NCR} North Central Regional Entry

N = Number of replications (observations).

Table 12

2007 LATE BLIGHT VARIETY TRIAL
MUCK SOILS RESEARCH FARM

LINE	RAUDPC ¹		LINE	RAUDPC ¹
	MEAN	Female		Male
Sorted by ascending RAUDPC value:				
Foliar Resistance Category (select lines):			Foliar Susceptibility Category (select lines)²:	
J138K6A22	0.0	<i>S. bulbocastanum</i> SFH	CORN-3	22.2
Kufri Jeevan	0.0		MSJ036-A	23.1
BER 141	0.7	<i>S. berthaultii</i>	MSJ316-A	28.0
MSQ176-5	0.8	MSI152-A	MSJ461-1	28.2
MSM183-1	0.9	Torridon	MSG274-3	29.5
BER 83	1.0	<i>S. berthaultii</i>	W2324-1	29.9
MSQ176-6	1.0	MSI152-A	MSJ461-1	30.0
LBR9	1.0		FL2101	30.1
LBR8	1.2		Yukon Gold	32.3
MCR 205	1.3	<i>S. microdontum</i>	Snowden	33.2
97A-51	1.6		Beacon Chipper	33.4
MCR 140	1.7	<i>S. microdontum</i>	Rio Colorado	33.8
MSQ070-1	1.8	MSK061-4	MSJ461-1	33.8
MSJ461-1	1.9	Tollocan	NY88	34.5
MSP516-A	2.2	Pike	MSJ461-1	34.6
ND99362B-1RUS	2.3		W3328-1RUS	34.6
MCR 150	2.3	<i>S. microdontum</i>	A93157-6LS	34.6
Malinche	2.3		W5716-1RUS	35.4
MSL268-D	2.4	NY103	J. Lee	35.5
MCR 214	2.4		ATND98459-1RY	35.6
MSN230-6RY	2.5	J. Lee	Norland	35.7
MSM137-2	2.5	Eramosa	MSG274-3	36.0
391046.22	2.6		NY139	36.1
MSM182-1	2.9	Stirling	NY121	36.1
MSL794-BRUS	3.4	A95053-61	A91194-4	36.1
B0718-3	3.4		Russet Burbank	36.3
MSQ492-2	3.7	Pike	MSJ461-1	37.3
MSQ134-5	4.1	MSG004-3	MSJ461-1	37.3
MSL106-AY	4.2	MSE230-6	MSH098-2	NorValley
MSQ086-3	4.3	Onaway	MSJ461-1	37.7
MSR160-2Y	4.9	NY121	MSJ126-9Y	38.1
ND039051B-1R	5.0		AC97097-14W	38.3
MSL603-319Y	5.0	J. Lee	MSG227-2	CORN-8
Jacqueline Lee	5.0	Tollocan	Chaleur	CO97065-7W
A96517-2	5.5			MSJ126-9Y
MSR158-4	6.4	MSL757-1	MSJ126-9Y	FL2053
MSM171-A	6.4	Stirling	MSE221-1	Russet Norkotah
MSQ440-2	7.3	K214-1R	MSJ461-1	CO97043-14W
MSM224-1	7.5	MSB106-7	J. Lee	Red Norland
RB Spunta/CSPAG.13	8.8			Reba
MSN105-1	10.5	MSG141-3	J. Lee	Saginaw Gold
LSD _{0.05}	9.6			43.7
				43.8

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

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

Phytophthora infestans isolates US-1 (Pi 95-3); US-6 (Pi 95-2); US-8 (Pi 02-007); US-10 (SR83-84); US-11 (Pi 96-1); US-14 (Pi 98-1, Pi 99-2) were inoculated on 7/27/07.

Planted as a randomized complete block design consisting of 3 replications of 4 hill plots on 6/11/2007.

Table 13

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

2007 POTATO EARLY DIE TRIAL
MONTCALM RESEARCH FARM
May 18 to September 26, 2007 (132 days)

Entry	USNo1 (cwt/a)		Yld Advantage USNo1 (cwt/a)	Yld Advantage USNo1 (%)	Total (cwt/a)		P<0.05
	Fumigated lsmean	Non-fumigated lsmean			Fumigated lsmean	Non-fumigated lsmean	
Atlantic	182	122	60	49	199	133	
Boulder	362	242	120	50	385	256	*
FL1879	255	214	41	19	263	228	
MSH228-6	257	260	-2	-1	278	281	
MSI005-2	275	247	28	11	292	277	
MSJ036-A	317	235	83	35	339	248	*
MSJ316-A	218	215	2	1	232	227	
MSJ461-1	301	270	31	12	330	297	
MSK061-4	233	152	80	53	248	166	*
MSK409-1	195	150	45	30	219	170	
MSK498-1	344	230	115	50	359	249	*
MSM171-A	307	256	51	20	320	273	
MSN105-1	219	177	43	24	238	194	
MSQ176-5	164	147	18	12	170	152	
MSQ441-6	219	162	57	35	229	172	
R.Norkotah	250	139	111	79	332	213	*

* Yields were significantly different ($\alpha = 0.05$), demonstrating a significant difference for yield between fumigated and non-fumigated plots

Table 14

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
DATE OF HARVEST: LATE HARVEST								
MSJ126-9Y	21	2	2				84	0.2
MSN105-1	21	3	0	1			84	0.2
FL2101	16	5	4				64	0.5
MSK061-4	16	6	2	1			64	0.5
Pike	13	5	7				52	0.8
MSH228-6	12	7	5	1			48	0.8
MSJ147-1	16	2	3	4			64	0.8
MSJ316-A	13	7	3	1	1		52	0.8
MSN191-2Y	14	5	4	1	1		56	0.8
MSM171-A	12	7	4	2			48	0.8
FL2053	10	6	8	1			40	1.0
MSJ036-A	13	3	4	4	1		52	1.1
FL1879	8	7	5	4	1		32	1.3
MSK409-1	7	8	5	4	1		28	1.4
Snowden	9	3	8	3	0	2	36	1.5
Beacon Chipper	5	2	7	6	3	2	20	2.2
Atlantic	2	7	4	6	2	4	8	2.4
ADAPTATION TRIAL, CHIP-PROCESSING LINES								
MSM102-A	19	4	2				76	0.3
MSQ089-1	18	5	2				72	0.4
MSN099-B	14	8	3				56	0.6
MSN238-A	14	9	1	0	1		56	0.6
MSQ492-2	12	9	3	1			48	0.7
MSN190-2	16	3	2	2	1	1	64	0.9
MSM060-3	12	5	4	2	2		48	1.1
MSL268-D	7	9	8	1			28	1.1
MSM246-B	8	9	5	3			32	1.1
Pike	6	9	4	4	2		24	1.5
MSQ029-1	12	1	4	5	2	1	48	1.5
MSL292-A	0	15	6	3	0	1	0	1.6
MSN313-A	6	8	1	9	1		24	1.6
MSQ108-1	6	6	6	5	2		24	1.6
Atlantic	7	5	6	4	2	1	28	1.7
MSJ461-1	5	10	4	2	0	4	20	1.8

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
MSQ070-1	8	4	4	4	3	2	32	1.8
MSP516-A	7	2	6	6	4		28	1.9
Snowden	2	6	4	6	1	6	8	2.6

ADAPTATION TRIAL, TABLESTOCK LINES

MSQ440-2	22	2	1				88	0.2
MSL106-AY	21	3	1				84	0.2
MSL183-AY	21	3	1				84	0.2
MSM137-2	21	3	1				84	0.2
Yukon Gold	21	3	0	1			84	0.2
MSQ425-4Y	17	5	3				68	0.4
MSQ176-5	16	6	3				64	0.5
MSM182-1	14	6	3	2			56	0.7
MSK498-1Y	15	5	2	2	1		60	0.8
Boulder	11	7	2	4	1		44	1.1
Jacqueline Lee	6	7	9	2	0	1	24	1.4
MSN170-A	6	6	7	5	1		24	1.6
MSM070-1	6	6	6	6	0	1	24	1.6

PRELIMINARY TRIAL, CHIP-PROCESSING LINES

MSN073-2	20	5					80	0.2
ND6095-1	21	3	0	0	1		84	0.3
MSP292-7	19	5	1				76	0.3
MSQ130-4	19	4	2				76	0.3
MSR036-5	18	5	2				72	0.4
MSR159-19	18	6	0	1			72	0.4
ND7519-1	17	6	2				68	0.4
MSP497-1	19	4	1	0	1		76	0.4
MSR159-06	18	4	3				72	0.4
MSR128-4Y	17	5	3				68	0.4
MSQ134-5	17	6	0	2			68	0.5
MSR130-1	16	6	2	1			64	0.5
MSR159-07Y	13	10	2				52	0.6
MSQ035-3	14	7	2	2			56	0.7
MSR102-3	12	9	4				48	0.7
MSR131-5	14	6	3	2			56	0.7
MSR061-1	16	3	4	1	0	1	64	0.8
MSR049-4	14	3	4	4			56	0.9
MSR156-7	14	3	5	2	1		56	0.9

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
MSR167-3Y	13	3	7	2			52	0.9
MSP408-10Y	10	1	4	2	1		56	1.1
MSN148-A	11	6	4	3	1		44	1.1
MSP459-5	14	4	2	3	0	2	56	1.1
MSR090-1Y	12	5	5	1	1	1	48	1.1
MSR041-5	6	6	4	4			30	1.3
MSQ341-BY	14	4	1	1	1	4	56	1.3
MSR159-10	9	4	7	4	1		36	1.4
MSR125-1	7	9	3	4	2		28	1.4
ND8305-1	7	4	3	5	1		35	1.5
MSM205-A	8	4	7	5	1		32	1.5
MSR089-14Y	10	2	4	3	3	3	40	1.8
MSR160-2Y	9	3	3	4	3	3	36	1.9
MSR127-2	7	1	6	6	2	3	28	2.2
Snowden	6	3	3	6	4	3	24	2.3
MSP115-3	6	2	3	3	4	7	24	2.7

PRELIMINARY TRIAL, TABLESTOCK LINES

MSR159-2	23	2					92	0.1
Esco	22	3					88	0.1
MSM288-2Y	22	3					88	0.1
MSP197-1	22	3					88	0.1
Caren	21	4					84	0.2
MSQ437-2PP	21	4					84	0.2
MSR214-2P	21	4					84	0.2
Eden	21	3	1				84	0.2
MSR186-3P	20	5					80	0.2
Ronn	22	1	2				88	0.2
BP-1	20	4	1				80	0.2
MSQ279-1	21	2	1	1			84	0.3
MSS582-1	20	4	0	1			80	0.3
Mnandi	19	5	0	1			76	0.3
MSR157-1Y	19	3	3				76	0.4
MSR605-15	18	5	2				72	0.4
Van der Plank	20	2	2	1			80	0.4
MI Purple Red Sport	15	10					60	0.4
MSQ443-1RR	17	7	0	1			68	0.4
MSR217-1R	16	8	1				64	0.4
MSQ461-2PP	18	3	4				72	0.4

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
Calibra	18	4	1	2			72	0.5
MSM224-1	15	7	3				60	0.5
Devlin	14	8	3				56	0.6
MSQ505-4	17	5	1	1	0	1	68	0.6
MSR051-1	14	6	4	1			56	0.7
MSR161-2	13	6	6				52	0.7
MSP084-3	16	5	1	1	1	1	64	0.8
Reba	14	7	1	2	0	1	56	0.8
MSQ086-3	14	4	4	3			56	0.8
MSQ558-2RR	7	15	3				28	0.8
Darius	9	9	6	1			36	1.0
MSR081-14	10	5	8	2			40	1.1
MSM183-1	7	8	9	1			28	1.2
NY121	7	8	5	3	1	1	28	1.4
MSR158-4	1	5	2	9	4	4	4	2.9

ROUND-WHITE TRIAL

W2978-3	21	4					84	0.2
MSJ316-A	19	5	1				76	0.3
CO96141-4W	19	4	2				76	0.3
CO97065-7W	18	4	2	1			72	0.4
W2310-3	16	7	2				64	0.4
MSI005-20Y	17	4	2	1	1		68	0.6
CO97043-14W	13	8	3	1			52	0.7
CO95051-7W	15	5	4	0	0	1	60	0.7
NorValley	9	12	4				36	0.8
Atlantic	10	7	2	6			40	1.2
W4016-4	10	6	5	3	1		40	1.2
W2324-1	9	6	7	2	1		36	1.2
NY139	6	8	7	3	0	1	24	1.4
W2564-2	9	5	3	6	1	1	36	1.5
W2133-1	7	6	6	4	1	1	28	1.6
Snowden	4	7	10	3	0	1	16	1.6
AC97097-14W	3	3	7	8	1	3	12	2.4

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
RUSSET TRIAL								
Russet Norkotah	24	1					96	0.0
MSA8254-2BRUS	21	3	1				84	0.2
CO95086-8RUS	18	5	2				72	0.4
AND98324-1RUS	19	3	1	2			76	0.4
CO97087-2RUS	14	10	1				56	0.5
W5716-1RUS	14	8	3				56	0.6
CORN-8	17	3	3	1	1		68	0.6
A93157-6LS	15	6	2	1	1		60	0.7
A95109-1	15	4	5	1			60	0.7
W3328-1RUS	14	7	2	2			56	0.7
Russet Burbank	13	6	5	1			52	0.8
AOA95154-1	10	11	3	1			40	0.8
ND7882B-7RUS	15	2	5	3			60	0.8
W1879-1RUS	10	8	5	2			40	1.0
CORN-3	8	10	5	2			32	1.0
MSL794-BRUS	7	11	3	3	1		28	1.2
W2683-2RUS	6	11	5	1	1	1	24	1.3
Canela	5	5	7	6	2		20	1.8
RED TRIAL								
MSQ441-6R	21	4					84	0.2
ND4659-5R	21	4					84	0.2
W2609-1R	21	4					84	0.2
W3882-1R	18	6	1				72	0.3
Red Norland	17	6	2				68	0.4
Michigan Purple	16	6	3				64	0.5
ND5002-3R	16	5	4				64	0.5
Rio Colorado	13	10	2				52	0.6
MSL228-1	14	7	4				56	0.6
ATND98459-1RY	12	10	3				48	0.6
Red Pontiac	14	7	3	1			56	0.6
TRANSGENIC TRIAL								
MSR606-06	25						100	0.0
MSR605-07	24	1					96	0.0
MSR605-14	24	1					96	0.0
MSR606-05	12	1					92	0.1
MSR606-09	23	2					92	0.1

**2007 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES***

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
	0	1	2	3	4	5+	BRUISE FREE	
YG8.8	22	2	1				88	0.2
MSR605-05	21	3	1				84	0.2
MSR605-01	23	0	1	0	1		92	0.2
MSR605-10	20	4	1				80	0.2
MSR606-02	19	5	1				76	0.3
MSR606-03	20	4	0	1			80	0.3
NO8.28	20	2	2	1			80	0.4
MSR606-10	8	2	1				73	0.4
MSR605-04	6	1	1				75	0.4
NO8.8	17	6	2				68	0.4
MSR606-08	17	6	2				68	0.4
MSR605-08	18	5	1	0	0	1	72	0.5
MSR605-17	11	7	2	4	1		44	1.1
MSJ036-A	5	11	9				20	1.2
USPB/SFA TRIAL CHECK SAMPLES (Not bruised)								
CO95051-7W	25						100	0.0
MSJ316-A	25						100	0.0
Snowden	25						100	0.0
MSJ147-1	23	2					92	0.1
W2324-1	23	2					92	0.1
CO96141-7W	23	1	1				92	0.1
Atlantic	22	0	2	1			88	0.3
Beacon Chipper	18	7					72	0.3
W2133-1	19	2	2	2			76	0.5
USPB/SFA TRIAL BRUISE SAMPLES								
CO96141-7W	19	4	1	1			76	0.4
MSJ147-1	18	5	2				72	0.4
MSJ316-A	18	5	2				72	0.4
Atlantic	17	6	2				68	0.4
W2324-1	15	5	5				60	0.6
CO95051-7W	13	9	2	1			52	0.6
Snowden	12	8	4	1			48	0.8
W2133-1	10	11	4				40	0.8
Beacon Chipper	4	10	6	4	1		16	1.5

* 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-s plywood drum and rotated ten times to produce simulated bruising. Samples were abrasive-peeled and scored 11/8/07. The table is presented in ascending order of average number of spots per tuber.