

MICHIGAN STATE UNIVERSITY  
AGRICULTURAL EXPERIMENT STATION  
IN COOPERATION WITH THE MICHIGAN POTATO INDUSTRY COMMISSION

# 2004 Michigan Potato Research Report



*Left to Right: Ben Kudwa, MPIC; Caryn Owens, SME; Gary Dannemiller, SME; Dick Crawford, MSU; State Senator Alan Cropsey, Craig Starkweather, Chief of Staff for Senator Cropsey and Dr. Dave Douches, MSU. See inside cover letter for photo details.*

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## **2004 POTATO VARIETY EVALUATIONS**

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### **INTRODUCTION**

Each year we conduct 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. The evaluation also includes disease evaluation in the scab nursery and foliar and tuber late blight evaluation at the Muck Soils Research Farm. 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 the tuber type and 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, 42°F and 50°F storage), as well as susceptibilities to late blight (foliar and tuber), common scab, and blackspot bruising are determined.

### **PROCEDURE**

Eleven 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 round white tuber types were divided into chip-processors and tablestock and were harvested at two dates (Date-of-Harvest trial: Early and Late). The other field experiments were the Russet, North Central Regional, Adaptation (tablestock and chip-processors), and Preliminary (tablestock and chip-processors), Transgenic and two water management trials. 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. 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 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. Round White Varieties:

#### Chip-processors (Tables 1 and 2)

There were 20 entries that were compared at two harvest dates. Atlantic, Snowden and four Frito Lay clones were used as checks. The plot yields were below average in the early harvest (100 days), but specific gravity values were very high due to the cool summer temperatures in July and August. Most lines increased between 30-70 cwt/a in yield for the second harvest date (140 days). We attribute the lower yields to the loss of fertilizer from the heavy spring rains. The results are summarized in **Tables 1 and 2**. Hollow heart and vascular discoloration were the prevalent internal defects. *Note that this year we changed the format of the data table so that the internal defects are presented as percentages rather than as a count.* Atlantic, Boulder, MSH067-3 and UEC showed the highest incidence of hollow heart between the two harvest dates. Vascular discoloration was only frequent in the later harvest, with MSH095-4 and Snowden being the highest. In the early harvest trial, the best yielding chipping lines were Atlantic, MSH112-6, and MSJ147-1. We have dropped MSH112-6 because it has poor chipping quality. MSJ147-1 is showing promise as a chipper out of colder storage temperatures and tissue culture plants have been distributed to the industry for larger scale testing. In the later harvest, MSJ147-1 has been consistently in the top group for the past few years. MSJ461-1, Boulder and MSF099-3 also yielded well, but Boulder had an abundance of off-types and hollow heart for the first time in 2004. MSJ461-1 is a promising chip-processing line with strong foliar resistance to late blight. MSF099-3 is dropped because of scab susceptibility. Liberator, MSG227-2 and FL1922 offer scab resistance. UEC, Liberator, MSJ461-1 and MSG227-2 are in the 500 cwt bins of the Commercial Demonstration Storage this year.

#### Tablestock (Tables 1 and 2)

Only two tablestock clones were tested in the Date of Harvest Trials in 2004. The russets are in a separate trial and the reds, along with other round whites and yellows are found in the North Central and Adaptation trials. The descriptions of Michigan Purple and Jacqueline Lee are below.

#### Variety Characteristics

LIBERATOR - a MSU selection for chip-processing with strong scab resistance. Yield and specific gravity over the past 7 years were comparable to Snowden. It has performed well in other states (Nebraska, Pennsylvania and California). It was in the national SFA and the North Central regional trials. Liberator was released in 2001 and is in the 2003 and 2004 Commercial Demonstration Storage.

UEC – an unknown eastern chip processing line thought to be from USDA-Beltsville. It has high yield potential and scab tolerance along with excellent chip-processing quality. It is in the 500 cwt 2002, 2003 and 2004 Commercial Demonstration Storage bins. It is being considered for naming and release in 2005.

MSG227-2 – a MSU chip-processing selection with strong scab resistance. It has a specific gravity acceptable for chip-processing, excellent chip quality and cold-chipping potential. The tubers are smooth-shaped with a flattened round appearance that is attractive. It has chip-processed

well from the 42°F MPIC demonstration storage studies. It has yielded well in some on-farm trials. It is in the 2004 500 cwt storage bins. This line will be considered for release in 2006.

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.

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

MSH095-4 - a mid-season maturing line with excellent chip quality and bruise susceptibility equal to Snowden. It had not yielded well in the past few years at Montcalm Research Farm or the on-farm trials. It is intermediate in scab tolerance between Atlantic and MSG227-2.

MSJ461-1 – an MSU chip-processing selection with strong foliar resistance to late blight and maturity similar to Snowden. It has excellent chip-processing quality, smooth round shape and above average yield, but an intermediate specific gravity in most years. The chips show few defects. It is in the 2004 500 cwt storage bins. It has good tablestock quality too.

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.

### **C. Russet Varieties (Table 3)**

The russet trial had 21 lines evaluated in 2004. GoldRush and Russet Burbank and Russet Norkotah were the standard varieties in the trial and the results are summarized in **Table 3**. Scab resistance was prevalent among the lines tested. Internal quality was high except for vascular discoloration in Keystone Russet. Specific gravity measurements were above average with Russet Burbank and GoldRush having 1.084 and 1.076 readings. The yield of the overall trial was below average for 2004. Off type and cull tubers were found in all lines tested, but the frequency was generally low in 2004. In general, the highest yielding lines also had the latest vine maturity in the trials. Gemstar, Keystone Russet and Silvertown Russet show the most promise, however, the varietal choice should take into account whether a new variety is a symptomless carrier of PVY. MSA8254-2BRUS is a high yielding MSU selection that has yielded well in on-farm trials. MSL794-BRUS had foliar late blight resistance, but did not exhibit strong resistance to scab. Stampede Russet has a

very attractive type, but has a low yield. MSE192-8RUS has similar features. Millenium Russet was the most blackspot bruise susceptible line tested in the trial.

#### **D. North Central Regional Trial (Table 4)**

The North Central Trial is conducted in a wide range of environments (11 locations) to provide adaptability data for the release of new varieties from North Dakota, Minnesota, Wisconsin, Michigan and Canada. Twenty-three breeding lines and 7 check varieties were tested in Michigan. The results are presented in **Table 4**. The range of yield was very wide (412 cwt – 61 cwt) which is typical for this trial each year. Moreover, the yields were below average this year, while the specific gravity readings were very high. This year we sorted the table into round white, reds and russet sections. This grouping will allow more meaningful comparisons to be made when looking at the table. The MSU lines MSJ317-1, MSI152-A, MSH095-4 and MSH031-5 were the Michigan representatives included in the North Central Trial. Both MSJ317-1 and MSI152-A round white tablestock selections have nice type and both have foliar late blight resistance. We are dropping MSH031-5 and will continue to evaluate MSH095-4. The chipper W1773-7 shows high yield potential, while FV12486-2 and CV89023-2R have excellent red color. Gemstar and V1102-1 were the best-performing russet lines.

#### **E. Adaptation Trial (Tables 5A and 5B)**

The Adaptation trial was divided into chip-processing and tablestock trials. Three cultivars (Snowden, Pike and Atlantic) and 25 advanced breeding lines are reported in the chip-processing trial. The trial was harvested after 140 days and the results are summarized in **Table 5A**. As in 2003, MSJ036-A was the highest yielding line. It also has a high specific gravity reading and scab resistance. The tuber type of MSJ036-A is also round and attractive. Other lines in the trial that show promise are MSK128-A and MSK136-2 which have foliar late blight resistance. MSM051-3, MSK061-4, MSK476-1 and MSJ126-9Y offer scab resistance with chip-processing from the MSU program. W2128-8 also showed scab resistance in 2004. The Cornell University line NY126 is a yellow-fleshed line with good type.

In the tablestock trial Onaway and Yukon Gold were the check varieties and 18 advanced breeding lines and new varieties are summarized in the table. The trial was harvested after 133 days and the results are summarized in **Table 5B**. Two red-skinned entries were tested. Dakota Jewel did not yield well in 2004, but the type and red color are attractive. Keuka Gold, a light yellow fleshed variety (NY101) from Cornell University was the highest yielding line. There are a number of promising late blight resistant lines to note: MSM224-1, MSL072-C, MSM171-A, MSM137-2, MSM183-1Y and MSL211-3. MSI049-A was the high yielding line and was also a strong performing line in the dry land trial with blackspot bruise resistance and moderate late blight resistance. MSK136-2 is a round white selection with chip-processing and strong foliar resistance to late blight. MSI005-20Y and MSJ033-10Y are scab tolerant yellow-fleshed selections that shows promise.

#### **F. Preliminary Trial (Tables 6A and 6B)**

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 chip-processing and tablestock utilization. Thirty-one advanced selections and three check varieties were reported chip-processing Preliminary trial. The chip-processing trial is summarized in **Table 6A** was harvested after 133 days. Most lines chip-processed well from the field. Specific gravities were high, but yield was below average. The top yielding line was MSN251-1Y, a yellow-fleshed line with scab resistance, but is late maturing. Another promising line is MSN105-1 which has both scab and late blight resistance. MSM185-1 has scab resistance and some moderate resistance to the Colorado potato beetle. MSN144-2 has some scab tolerance and high yield potential. **Table 8B** summarizes the tablestock lines. Interestingly, many have foliar late blight resistance. This trial was also harvested and evaluated after 133 days. Nine of the 17 lines were late blight resistant. Despite the late blight resistance, the vine maturities were not late in all cases. Seven different late blight resistance sources were also represented. The most promising lines combining tablestock qualities and late blight resistance are MSL179-AY, MSN228-5, MSL183-AY and MSM417-A. MSL179-AY also stood out in the 2003 trial. MSN188-1 is selection with purple splashes that may suit the roadside markets. NDMS7994-1RUS is a scab resistant russet selection to test further. MSN084-3 is a selection with bright, round tubers. It is a cross between Boulder and Chaleur.

### **G. Transgenic Trial (Table 7)**

A field trial was conducted to evaluate Bt-cryIIa1 transgenic potato lines. The results are summarized in **Table 7**. Spunta G2 and Spunta G3 have good agronomic performance and good type. Two Bt-Atlantic lines were in the trial, but were dropped because of their poor vine growth. Four of the five Bt-Lady Rosetta line performed as well as the non-transgenic Lady Rosetta, but the performance of these Lady Rosetta and the Bt-lines were poor and susceptible to hollow heart.

### **H. Water Management Trials (Tables 8A and 8B)**

In 2003 and 2004 a series of field trials were conducted to compare the agronomic performance of varieties and lines when grown with and without irrigation. In 2004 20 clones were compared. In the irrigated trial, agronomic performance was typical of other irrigated trials at the Montcalm Research Farm. In the non-irrigated trial, yields were about 60%, vine maturity ratings were half, frequency of hollow heart was reduced and specific gravity was similar compared to the irrigated trial. Percent of US #1 potatoes for Michigan Purple, Boulder, Atlantic and MSJ080-1 were similar between irrigated and non-irrigated treatments.

### **I. Potato Scab Evaluation (Table 9)**

Each year a replicated field trial at the MSU Soils Farm is conducted to assess resistance to common and pitted 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 9** categorizes many of the varieties and advanced selections tested in 2004 at the MSU Soils Farm Scab Nursery over a

three-year period. This disease trial is a severe test. The varieties and 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. In 2004 the scab disease incidence at the nursery was typical compared to other years, and the data were separated into three categories (Resistant = 0.0-1.0; Moderately Resistant = 1.3 – 1.8; and Susceptible = 2 or higher). The check varieties Russet Burbank, GoldRush, Superior, Onaway, Pike, Red Pontiac, Yukon Gold, Atlantic and Snowden can be used as references (bolded in **Table 9**). In general, most russet lines were scab resistant. This year's results indicate that we have been able to breed numerous lines for the chip-processing and tablestock markets with resistance to scab. Most notable scab resistant MSU lines are Liberator, MSG227-2, MSE192-8RUS, MSE202-3RUS, MSE221-1, MSH228-6, MSK409-1, MSL211-3, MSN251-1Y, MSJ126-9Y, MSJ033-10Y, MSK061-4, MSK476-1, and MSJ036-A. 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 2-6B**).

#### **J. Late Blight Trial (Table 10)**

In 2004, a late blight trial was conducted at the Muck Soils Research Farm. Over 100 entries were evaluated in replicated plots. The field was planted on June 23 and inoculated July 30 with a combinations of isolates (see Table 10 for isolates), and ratings were taken throughout August. Most lines were highly susceptible to the US-8 genotype of late blight. Included in this trial are the varieties and lines from the MSU trials at the Montcalm Research Farm. The partial results are summarized in **Table 10**. The first column lists the lines classified as resistant, while the second column lists select varieties that are susceptible. The late blight differential lines LBR8 and LBR9 were resistant in 2004 as in previous years (not shown in table). Twenty-eight MSU lines were highly resistant to 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), NY121 (Cornell University clone) and Jacqueline Lee (MSU variety). These resistant progeny indicate that we can continue to breed for resistance using this group of resistant clones. Some of the most promising late blight resistant clones are MSJ461-1, MSL159-AY, MSL179-AY, MSM171-A, MSL794-BRUS, MSL211-3, MSN105-1, MSN251-1Y, MSI152-A and MSK136-2. We find these late blight resistant lines valuable because many of them also have marketable maturity. Some of these lines also have other desirable traits such as scab tolerance resistance and/or chip-processing quality. Tuber late blight resistance is being evaluated on many of the selections with foliar late blight resistance.

#### **K. Blackspot Susceptibility (Table 11)**

Increased evaluations of advanced seedlings and new varieties for their susceptibility to blackspot bruising have been implemented in the variety evaluation program over the past decade. Based upon the results collected over the past three years we decided to eliminate the check sample from our bruise assessment. Therefore a composite bruise sample of each line in the trials was collected. The sample consisted of 25 tubers (a composite of 4 reps) from each line 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 11**. 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 is helping to standardize the bruise testing. We are observing less variation between trials since we standardized the handling of the bruise sample. However, these results become more meaningful when evaluated over 3 years that reflects different growing seasons and harvest conditions. In 2004 the bruise levels were higher other years. The most bruise resistant lines this year were FL1922, Keystone Russet, Stampede Russet, MSA8254-2BRUS, GoldRush, MSK409-1, MSK437-A, Dakota Jewel, MSN125-2, MSN084-3, MSL183-AY, MSI049-A, BTX1544-2W/Y, MSJ317-1, NDTX4271-5R and MSE192-8RUS. The most susceptible lines were MSEE018-1, ND2470-27, MSM183-1Y, MSL007-B, NY132, Millenium Russet, MSH095-4, UEC, FL1833, Snowden and Atlantic.



Table 1

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICSDATE OF HARVEST TRIAL: EARLY HARVEST  
MONTCALM RESEARCH FARM  
AUGUST 11, 2004 (100 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>						SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%)				3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO	TUBER QUALITY <sup>3</sup>				US#1			
								HH			VD	IBS	BC	CWT/A	
<b>ATLANTIC</b>	<b>275</b>	<b>295</b>	<b>93</b>	<b>7</b>	<b>87</b>	<b>6</b>	<b>0</b>	<b>1.103</b>	<b>1.0</b>	<b>23</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>264</b>	
MSH112-6	262	305	86	9	85	0	5	1.097	1.5	0	0	0	0	270*	
MICHIGAN PURPLE	243	266	92	7	88	4	1	1.078	2.5	3	0	0	0	265	
MSJ147-1	240	278	87	13	87	0	0	1.095	2.0	0	0	0	0	271*	
FL1833	238	252	94	6	91	3	0	1.098	1.5	0	0	0	0	263*	
<b>SNOWDEN</b>	<b>235</b>	<b>275</b>	<b>85</b>	<b>14</b>	<b>85</b>	<b>0</b>	<b>0</b>	<b>1.095</b>	<b>1.5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>213</b>	
BOULDER	223	244	92	2	81	11	6	1.080	2.0	28	0	0	5	229	
UEC	222	240	92	8	90	2	0	1.091	2.0	5	0	0	0	225	
MSJ080-1	221	250	88	10	85	4	2	1.082	1.0	10	0	3	0	235*	
FL1879	221	236	94	6	90	4	0	1.090	1.5	8	3	0	0	238*	
MSF099-3	217	249	87	13	84	3	0	1.098	1.0	3	0	0	0	219	
MSH095-4	207	235	88	11	87	1	1	1.094	2.0	0	5	0	0	224	
MSH067-3	205	217	95	5	92	3	0	1.096	1.5	13	0	0	0	200*	
MSJ461-1 <sup>LBR</sup>	198	254	78	22	78	0	0	1.087	1.5	0	5	0	0	191	
MSH094-8	195	222	88	10	86	2	2	1.094	1.5	5	5	0	0	177	
MSH228-6	194	223	87	12	87	0	1	1.090	1.0	0	5	0	0	181*	
MSG227-2	194	229	85	15	85	0	0	1.090	2.0	5	3	0	0	197	
B0766-3	172	205	84	16	84	0	0	1.093	2.0	15	0	0	0	-	
JACQUELINE LEE <sup>LBR</sup>	168	298	57	43	57	0	0	1.087	2.5	0	0	0	0	185	
LIBERATOR	163	192	84	16	84	0	0	1.093	1.0	0	0	0	3	194	
FL1922	151	174	87	12	85	1	1	1.085	1.5	0	5	0	0	171*	
FL1867	135	155	87	9	87	0	4	1.093	2.0	13	0	0	0	187*	
MEAN	208	241						1.091						* Two-Year Average	
LSD <sub>0.05</sub>	36	41						0.003							

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight ( *Phytophthora infestans* ) in inoculated field trials at the MSU Muck Soils Research Farm.

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

Planted May 3, 2004

Table 2

DATE OF HARVEST TRIAL: LATE HARVEST  
MONTCALM RESEARCH FARM  
SEPTEMBER 20, 2004 (140 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>				SCAB <sup>4</sup>	MAT <sup>5</sup>	3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC			US#1
<b>ATLANTIC</b>	<b>350</b>	<b>363</b>	<b>96</b>	<b>3</b>	<b>87</b>	<b>9</b>	<b>1</b>	<b>1.104</b>	<b>1.0</b>	<b>28</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>2.4</b>	<b>4.0</b>	<b>340</b>
MSJ147-1	320	353	91	9	88	2	0	1.094	1.0	5	13	0	0	1.8	3.8	302*
BOULDER	317	359	88	2	67	22	10	1.083	1.0	35	0	0	8	1.8	3.5	353
MSJ461-1 <sup>LBR</sup>	292	349	84	15	82	2	1	1.086	1.0	0	5	0	0	1.8	4.0	297
MSF099-3	283	314	90	9	85	5	1	1.098	1.0	3	0	0	3	2.5	3.5	311
MICHIGAN PURPLE	281	303	93	6	90	3	2	1.078	1.0	3	10	0	0	3.3	2.5	315
FL1833	277	289	96	3	81	15	1	1.099	1.0	10	10	0	0	2.0	3.5	289*
<b>SNOWDEN</b>	<b>275</b>	<b>315</b>	<b>87</b>	<b>11</b>	<b>83</b>	<b>4</b>	<b>2</b>	<b>1.095</b>	<b>1.0</b>	<b>5</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1.9</b>	<b>3.5</b>	<b>270</b>
UEC	273	289	94	5	83	12	1	1.092	1.0	5	8	0	0	1.5	4.0	324*
MSG227-2	261	286	91	8	87	4	1	1.093	1.0	13	3	0	0	0.8	4.0	280
MSH094-8	259	279	93	7	90	3	0	1.097	1.0	10	8	0	0	2.0	3.3	265
MSH228-6	253	275	92	7	89	3	1	1.095	1.0	8	10	0	0	1.3	4.3	270*
FL1879	248	259	96	4	93	3	0	1.092	1.0	5	18	0	0	2.5	2.3	306*
MSJ080-1	241	267	90	8	82	8	2	1.084	1.0	20	10	0	0	2.3	3.5	300*
MSH095-4	216	235	92	8	91	1	0	1.094	1.0	5	28	3	0	2.5	2.8	280
MSH067-3	213	233	91	5	80	11	4	1.097	1.0	28	0	0	0	2.7	3.5	252*
B0766-3	212	240	88	11	85	4	1	1.096	1.0	20	3	0	0	1.8	3.8	-
JACQUELINE LEE <sup>LBR</sup>	194	321	60	39	60	0	1	1.091	1.0	0	10	0	0	2.7	3.5	237
LIBERATOR	188	222	85	14	84	1	1	1.091	1.0	3	13	0	0	0.3	3.3	249
FL1922	167	193	86	11	84	2	3	1.086	1.0	0	8	0	0	1.0	3.0	199*
FL1867	160	183	88	10	87	1	3	1.093	1.0	10	0	0	0	1.5	3.0	196*
MEAN	251	282						1.092								
LSD <sub>0.05</sub>	45	48						0.003								

\* Two-Year Average

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

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

<sup>5</sup>MATURITY RATING: August 12, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 3, 2004

Table 3

RUSSET and LONG TYPES TRIAL  
MONTCALM RESEARCH FARM  
SEPTEMBER 15, 2004 (135 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>					3-YR AVG US#1		
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB <sup>3</sup>	MAT <sup>4</sup>	CWT/A
GEMSTAR (A9014-2RUS)-NCR	320	400	80	17	75	5	3	1.093	15	3	0	0	0.8	4.3	-
KEYSTONE RUSSET	303	343	88	10	68	20	2	1.073	3	40	0	0	0.5	4.0	301*
A8254-2BRUS	271	397	68	27	61	7	4	1.084	15	3	0	0	0.0	4.3	291*
SILVERTON RUSSET	269	307	88	13	66	23	2	1.080	0	5	0	0	0.0	4.5	193
A9305-10	258	344	75	21	71	4	4	1.086	0	15	0	0	1.5	4.5	255*
V1102-1-NCR	234	283	83	16	76	7	1	1.085	0	8	0	0	1.0	1.5	-
MSL794-BRUS <sup>LBR</sup>	226	283	80	17	70	9	3	1.085	0	3	0	0	2.0	3.8	-
A8893-1	213	322	66	31	65	1	3	1.087	3	8	0	0	0.5	3.5	-
A95409-1	200	285	70	27	66	4	3	1.090	0	0	0	0	1.8	3.0	212*
MSE202-3RUS	191	254	75	21	67	8	3	1.084	15	3	0	0	1.0	4.3	213
WALLOWA RUSSET	191	255	75	21	63	12	4	1.093	5	23	0	0	3.0	3.5	-
MILLENIUM RUSSET	178	268	66	27	65	1	7	1.086	3	3	0	0	0.3	3.8	-
<b>GOLDRUSH</b>	<b>176</b>	<b>256</b>	<b>69</b>	<b>30</b>	<b>63</b>	<b>6</b>	<b>2</b>	<b>1.076</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>2.0</b>	<b>198</b>
MSL025-ARUS	165	283	58	41	56	2	1	1.079	0	15	0	3	0.8	4.0	-
<b>RUSSET BURBANK-NCR</b>	<b>147</b>	<b>265</b>	<b>56</b>	<b>40</b>	<b>55</b>	<b>1</b>	<b>5</b>	<b>1.084</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0.8</b>	<b>3.0</b>	<b>195</b>
AC89536-5RUS	138	263	52	46	50	3	2	1.084	5	18	0	0	0.3	3.0	210
<b>RUSSET NORKOTAH-NCR</b>	<b>126</b>	<b>220</b>	<b>58</b>	<b>41</b>	<b>58</b>	<b>0</b>	<b>1</b>	<b>1.082</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1.3</b>	<b>1.3</b>	-
ND7882b-7RUS-NCR	125	246	51	47	49	1	2	1.080	3	5	3	0	-	1.0	-
MSE192-8RUS	124	208	59	34	57	3	7	1.076	0	3	0	0	1.0	2.8	183
AC STAMPEDE RUSSET-NCR	94	157	60	39	57	3	2	1.064	0	3	0	0	0.5	2.3	-
MN99460-21-NCR	61	149	41	58	41	0	1	1.082	0	0	3	0	2.3	1.3	-
MEAN	191	276						1.083							
LSD <sub>0.05</sub>	72	76						0.005							* Two-Year Average

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

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

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

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

<sup>4</sup>MATURITY RATING: August 28, 2003; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Planted May 3, 2004

Table 4

NORTH CENTRAL REGIONAL TRIAL  
MONTCALM RESEARCH FARM  
SEPTEMBER 6, 2004 (126 DAYS)

ENTRY	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>						MERIT <sup>6</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	SCAB <sup>4</sup>	MAT <sup>5</sup>	
<b>ROUND WHITES:</b>																
W1773-7	283	342	83	16	82	1	1	1.101	1.0	0	3	0	0	1.8	4.0	3
USDA02-20066	272	325	84	15	83	1	1	1.084	2.5	8	10	0	3	-	5.0	
<b>NORVALLEY</b>	<b>260</b>	<b>314</b>	<b>83</b>	<b>15</b>	<b>82</b>	<b>1</b>	<b>2</b>	<b>1.085</b>	<b>1.5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1.5</b>	<b>2.5</b>	<b>1</b>
<b>ATLANTIC</b>	<b>271</b>	<b>309</b>	<b>87</b>	<b>6</b>	<b>74</b>	<b>13</b>	<b>7</b>	<b>1.098</b>	<b>1.0</b>	<b>45</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2.4</b>	<b>3.3</b>	
<b>SNOWDEN</b>	<b>259</b>	<b>290</b>	<b>89</b>	<b>9</b>	<b>86</b>	<b>4</b>	<b>2</b>	<b>1.098</b>	<b>1.5</b>	<b>10</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>1.9</b>	<b>4.0</b>	<b>2</b>
W2128-8	221	288	77	21	76	0	2	1.101	1.5	0	3	0	0	0.7	3.3	
USDA02-20312	237	286	83	16	83	0	1	1.098	1.5	5	13	0	0	-	3.8	
MSJ317-1 <sup>LBR</sup>	238	270	88	9	87	1	2	1.085	1.0	10	10	0	0	2.5	5.0	
MSH095-4	228	263	87	11	86	1	2	1.093	1.5	5	28	0	0	2.5	1.8	
MSI152-A <sup>LBR</sup>	217	253	86	13	84	2	1	1.075	1.5	0	3	0	0	1.0	4.5	
USDA02-20152	123	242	51	45	51	0	4	1.091	1.5	30	0	0	0	-	2.5	
W1443	167	214	78	17	78	1	5	1.088	1.0	28	8	0	0	1.0	2.5	
MSH031-5	175	203	86	13	86	0	1	1.086	1.5	0	3	0	0	2.7	2.5	
MN99380-1	101	171	59	40	59	0	1	1.078	1.0	0	15	0	0	2.0	1.0	
MN96001-2	135	168	80	18	79	1	2	1.075	2.0	0	10	0	0	1.5	1.0	
V0319-1	104	153	68	32	67	1	0	1.084	1.5	3	0	0	0	-	1.5	
USDA02-20059	75	132	56	41	56	0	3	1.060	2.0	0	15	0	0	-	1.0	
<b>REDS:</b>																
<b>RED PONTIAC</b>	<b>412</b>	<b>440</b>	<b>94</b>	<b>5</b>	<b>85</b>	<b>8</b>	<b>2</b>	<b>1.074</b>	<b>2.5</b>	<b>13</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>3.0</b>	<b>4.0</b>	<b>2</b>
FV12486-2	258	284	91	9	85	5	0	1.070	2.0	0	5	0	0	1.5	1.8	1
CV89023-2R	226	284	80	20	80	0	0	1.077	2.5	0	0	0	0	1.0	1.3	3
VILLETA ROSE (W2275-3R)	144	244	59	41	59	0	0	1.060	2.0	0	0	0	0	-	1.3	
<b>RED NORLAND</b>	<b>192</b>	<b>221</b>	<b>87</b>	<b>12</b>	<b>87</b>	<b>0</b>	<b>1</b>	<b>1.069</b>	<b>2.5</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>1.7</b>	<b>1.0</b>	
MN96013-1	84	117	72	25	69	3	3	1.076	1.5	0	5	0	0	3.0	1.5	

**NORTH CENTRAL REGIONAL TRIAL  
MONTCALM RESEARCH FARM  
SEPTEMBER 6, 2004 (126 DAYS)**

ENTRY	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%)						MERIT <sup>6</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO			TUBER QUALITY <sup>3</sup>						
									HH	VD	IBS	BC	SCAB <sup>4</sup>	MAT <sup>5</sup>		
<b>RUSSET / LONG TYPES:</b>																
GEMSTAR (A9014-2RUS)	320	400	80	17	75	5	3	1.093	-	15	3	0	0	0.8	4.3	1
V1102-1	234	283	83	16	76	7	1	1.085	-	0	8	0	0	1.0	1.5	3
<b>RUSSET BURBANK</b>	<b>147</b>	<b>265</b>	<b>56</b>	<b>40</b>	<b>55</b>	<b>1</b>	<b>5</b>	<b>1.084</b>	-	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0.8</b>	<b>3.0</b>	
ND7882b-7RUS	125	246	51	47	49	1	2	1.080	-	3	5	3	0	-	1.0	
<b>RUSSET NORKOTAH</b>	<b>126</b>	<b>220</b>	<b>58</b>	<b>41</b>	<b>58</b>	<b>0</b>	<b>1</b>	<b>1.082</b>	-	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>1.3</b>	<b>1.3</b>	<b>2</b>
AC STAMPEDE RUSSET	94	157	60	39	57	3	2	1.064	-	0	3	0	0	0.5	2.3	
MN99460-21	61	149	41	58	41	0	1	1.082	-	0	0	3	0	2.3	1.3	
MEAN	203	253						1.083								
LSD <sub>0.05</sub>	45	50						0.003								

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

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

<sup>5</sup>MATURITY RATING: August 24, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

<sup>6</sup>MERIT: A Merit rating was given for the best 3 entries within each market class (rank order, 1 = best).

Planted May 3, 2004

Table 5A

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

ADAPTATION TRIAL, CHIP-PROCESSING LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 20, 2004 (140 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>					
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	SCAB <sup>4</sup>	MAT <sup>5</sup>
MSJ036-A	362	386	94	6	86	8	0	1.096	1.0	18	5	0	0	0.8	3.3
A91814-5	324	377	86	9	77	9	5	1.094	1.0	3	5	0	0	2.8	4.3
MSL766-1 <sup>LBR</sup>	317	341	93	5	66	27	2	1.085	1.0	5	0	0	0	2.3	4.0
<b>ATLANTIC</b>	<b>307</b>	<b>326</b>	<b>94</b>	<b>5</b>	<b>82</b>	<b>13</b>	<b>1</b>	<b>1.105</b>	<b>1.0</b>	<b>53</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.4</b>	<b>3.5</b>
NY126(Y)	280	297	94	5	85	9	1	1.095	1.0	8	3	0	0	1.5	3.5
MSK498-1Y	275	305	90	9	89	1	1	1.090	1.0	0	5	0	0	1.5	4.8
W2128-8	268	329	81	16	81	0	3	1.105	1.0	0	10	0	0	0.7	2.8
<b>SNOWDEN</b>	<b>263</b>	<b>292</b>	<b>90</b>	<b>8</b>	<b>87</b>	<b>4</b>	<b>2</b>	<b>1.097</b>	<b>1.0</b>	<b>3</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1.9</b>	<b>3.5</b>
MSM051-3	260	279	93	6	88	6	0	1.091	1.0	10	0	0	5	1.0	3.5
MSL007-B	254	287	88	12	85	3	0	1.094	1.0	3	3	0	0	2.0	4.8
W52-26 <sup>LBR</sup>	251	285	88	12	87	1	0	1.083	1.5	0	0	0	0	1.8	2.8
MSK476-1	242	286	85	14	84	1	2	1.109	1.0	3	8	0	0	1.3	5.0
W2133-1	240	276	87	13	84	3	0	1.097	1.5	3	13	0	0	1.5	4.0
MSK061-4	240	275	87	13	87	0	0	1.098	1.0	0	18	0	0	1.3	4.0
MSK128-A <sup>LBR</sup>	237	267	89	11	89	0	1	1.093	1.5	0	0	0	0	2.8	1.8
MSK049-A	232	311	75	25	73	2	1	1.097	1.0	0	5	0	0	2.3	3.8
MSK136-2 <sup>LBR</sup>	231	280	82	17	82	0	0	1.094	1.5	0	0	0	0	3.0	5.0
MSK009-B	224	246	91	6	82	9	2	1.087	1.0	5	0	0	0	1.5	3.5
<b>PIKE</b>	<b>223</b>	<b>249</b>	<b>90</b>	<b>9</b>	<b>89</b>	<b>1</b>	<b>1</b>	<b>1.099</b>	<b>1.0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>4.5</b>
W2154-1	219	277	79	18	78	1	3	1.098	1.0	8	3	0	0	1.7	1.0
MSM170-2	213	250	85	14	83	2	1	1.087	1.0	0	0	0	0	4.0	3.3
AF2211-9	206	221	93	5	90	3	2	1.094	1.0	45	10	8	0	2.3	1.3
MSM046-4	197	247	80	19	80	0	1	1.097	1.0	0	15	0	0	1.3	5.0
W2233-2	196	228	86	13	86	0	1	1.086	1.5	8	8	0	0	2.3	1.8

**ADAPTATION TRIAL, CHIP-PROCESSING LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 20, 2004 (140 DAYS)**

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>				SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>						
	US#1	TOTAL	US#1	Bs	As	OV			PO	HH	VD	IBS	BC	SCAB <sup>4</sup>	MAT <sup>5</sup>
MSJ126-9Y	192	213	90	10	86	4	0	1.088	1.0	3	5	0	0	1.3	1.8
NY132	176	208	84	15	84	1	1	1.110	1.0	8	0	0	0	1.5	4.8
W2145-11	171	201	85	14	85	0	1	1.101	1.0	3	0	0	0	1.0	3.8
MSK409-1	155	191	81	14	80	1	5	1.092	1.0	0	5	0	0	1.3	2.0
MEAN	241	276						1.095							
LSD <sub>0.05</sub>	48	47						0.004							

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

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

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

<sup>5</sup>MATURITY RATING: August 24, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)  
Planted May 3, 2004

Table 5B

ADAPTATION TRIAL, TABLESTOCK LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 13, 2004 (133 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>					SCAB <sup>3</sup>	MAT <sup>4</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC		
KEUKA GOLD	360	374	96	4	90	6	0	1.087	0	8	0	3	0.8	4.5
MSM224-1 <sup>LBR</sup>	347	404	86	11	80	6	3	1.084	0	3	0	0	2.3	5.0
MSL072-C <sup>LBR</sup>	331	359	92	7	86	6	1	1.085	0	3	0	0	2.0	4.5
MSI049-A <sup>MRLBR</sup>	288	318	90	8	82	8	1	1.080	8	0	0	0	2.3	2.5
MSM171-A <sup>LBR</sup>	280	305	92	8	88	4	1	1.073	0	5	0	3	2.5	1.3
MSJ204-3	279	304	92	5	84	8	3	1.083	0	0	0	0	1.7	4.5
STIRLING <sup>LBR</sup>	269	322	83	15	81	2	2	1.081	28	5	0	0	2.3	4.3
MSI005-20Y	242	281	86	13	84	3	1	1.083	0	5	0	0	1.3	2.3
<b>ONAWAY</b>	<b>242</b>	<b>294</b>	<b>82</b>	<b>9</b>	<b>78</b>	<b>4</b>	<b>9</b>	<b>1.071</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>1.0</b>	<b>1.3</b>
<b>YUKON GOLD</b>	<b>239</b>	<b>246</b>	<b>97</b>	<b>3</b>	<b>87</b>	<b>10</b>	<b>0</b>	<b>1.090</b>	<b>10</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>3.0</b>	<b>1.3</b>
MSM137-2 <sup>LBR</sup>	237	273	87	11	83	3	2	1.080	8	3	0	0	3.0	1.0
MSM183-1Y <sup>LBR</sup>	225	337	67	25	65	1	9	1.097	0	0	0	0	2.3	5.0
MSK437-A	293	303	97	3	59	38	1	1.082	18	3	0	3	2.0	4.8
MSM037-3	289	318	91	5	79	11	4	1.076	20	8	0	0	1.3	4.8
MSL211-3 <sup>LBR</sup>	213	243	88	10	85	3	2	1.080	0	8	0	0	1.3	1.5
MSL228-1	218	245	89	8	88	0	3	1.090	0	10	0	0	1.8	2.3
MSJ033-10Y	214	259	83	13	82	1	4	1.082	0	8	0	0	1.0	3.3
MSK125-3 <sup>MRLBR</sup>	212	276	77	15	74	3	8	1.082	8	0	18	0	1.8	4.3
DAKOTA JEWEL	180	212	85	14	85	0	1	1.080	0	0	0	0	0.8	1.0
MODOC	164	218	76	24	75	1	1	1.070	3	5	0	0	2.0	1.8
MEAN	256	295						1.082						
LSD <sub>0.05</sub>	50	49						0.003						

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

<sup>4</sup>MATURITY RATING: August 24, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 3, 2004



Table 6A

PRELIMINARY TRIAL, CHIP-PROCESSING LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 13, 2004 (133 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>					SCAB <sup>4</sup>	MAT <sup>5</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC			
MSN251-1Y <sup>LBR</sup>	412	461	89	6	75	14	5	1.094	1.0	35	0	0	0	1.0	5.0	
MSN125-2	382	405	94	6	92	3	0	1.091	1.0	0	0	0	0	2.0	5.0	
MSM164-2Y	374	417	90	5	66	24	6	1.081	1.5	45	0	45	0	1.3	5.0	
MSN144-2	373	398	94	6	73	20	1	1.081	1.0	15	5	0	0	1.3	4.0	
<b>ATLANTIC</b>	<b>365</b>	<b>384</b>	<b>95</b>	<b>3</b>	<b>81</b>	<b>14</b>	<b>2</b>	<b>1.102</b>	<b>1.0</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>2.4</b>	<b>3.5</b>	
MSN105-1 <sup>LBR</sup>	360	396	91	9	91	0	0	1.094	1.0	0	0	0	0	1.3	4.0	
MSM057-D	320	354	90	8	81	10	1	1.091	1.0	0	0	0	0	2.7	4.0	
MSL235-AY <sup>MRLBR</sup>	314	349	90	7	79	11	3	1.081	1.0	25	0	0	0	1.7	5.0	
MSN184-2	297	318	93	7	83	10	0	1.085	1.0	0	0	0	0	-	4.5	
MSM409-2Y	295	337	87	11	84	4	2	1.089	2.0	20	0	0	0	3.0	4.5	
MSM185-1 <sup>MRCPB</sup>	288	334	86	9	82	4	5	1.094	1.0	5	0	0	0	1.0	5.0	
MSN065-2	280	323	87	10	83	4	3	1.098	1.0	10	0	0	0	-	2.5	
MSM070-1	277	314	88	11	84	4	1	1.086	1.0	0	0	0	0	1.3	3.0	
MSM205-A	267	306	87	10	83	4	3	1.086	1.0	0	0	0	0	2.0	3.0	
<b>SNOWDEN</b>	<b>265</b>	<b>298</b>	<b>89</b>	<b>11</b>	<b>85</b>	<b>4</b>	<b>0</b>	<b>1.095</b>	<b>1.0</b>	<b>10</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>1.9</b>	<b>3.5</b>	
MSN179-5	264	312	85	10	82	3	6	1.094	1.0	0	0	0	0	1.8	3.5	
MSM170-B	263	283	93	7	83	10	0	1.086	1.0	5	0	0	0	1.7	2.5	
MSN174-3	261	326	80	20	80	0	0	1.079	1.0	10	0	0	0	1.5	3.0	
MSM039-B	260	317	82	17	81	1	1	1.102	1.0	0	0	5	0	1.8	4.0	
MSN094-3	258	302	85	14	81	5	1	1.094	1.0	45	0	0	0	1.3	5.0	
MSN236-1	240	301	80	17	80	0	3	1.103	1.0	0	0	0	0	1.8	4.0	
MSM051-A	231	275	84	14	83	1	2	1.089	1.0	15	0	0	0	3.0	3.5	
MSN085-2Y	222	271	82	18	82	0	1	1.107	1.0	5	5	0	0	2.0	3.5	
MSN026-4	219	256	86	14	86	0	0	1.097	1.0	0	0	0	0	1.5	3.5	
MSL292-A	217	247	88	11	85	3	1	1.093	1.0	10	0	0	0	2.0	2.5	
MSL106-AY	216	269	81	16	78	3	4	1.081	1.0	35	0	0	0	2.7	3.0	
MSL268-D <sup>LBR</sup>	215	260	83	17	83	0	1	1.088	1.0	0	0	0	0	2.0	3.5	

**PRELIMINARY TRIAL, CHIP-PROCESSING LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 13, 2004 (133 DAYS)**

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>					SCAB <sup>4</sup>	MAT <sup>5</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC			
<b>PIKE</b>	<b>214</b>	<b>234</b>	<b>91</b>	<b>8</b>	<b>90</b>	<b>1</b>	<b>0</b>	<b>1.097</b>	<b>1.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>4.5</b>	
MSM188-1 <sup>MRCPB</sup>	211	253	84	16	83	1	0	1.099	1.0	10	0	0	0	-	2.5	
MSM060-3	205	261	79	20	79	0	1	1.103	1.0	5	10	5	0	1.0	2.5	
MSM053-4	194	209	93	7	84	9	0	1.089	1.0	55	0	0	0	2.0	5.0	
MSN098-4	183	212	87	11	87	0	3	1.081	1.0	0	0	0	0	1.3	2.5	
MSM408-B	160	187	86	13	80	6	2	1.093	1.0	0	0	0	0	-	3.5	
MSN209-3 <sup>LBR</sup>	155	202	77	11	72	5	12	1.092	1.0	0	0	0	0	2.0	4.5	
MEAN	266	305						1.092								
LSD <sub>0.05</sub>	66	68						0.005								

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

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

<sup>5</sup>MATURITY RATING: August 24, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)  
Planted May 3, 2004

Table 6B

PRELIMINARY TRIAL, TABLESTOCK LINES  
MONTCALM RESEARCH FARM  
SEPTEMBER 13, 2004 (133 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>				SCAB <sup>4</sup>	MAT <sup>5</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC		
MSL179-AY <sup>LBR</sup>	358	405	88	10	81	7	2	1.088	3.0	0	10	0	0	2.3	4.0
MSN188-1	305	366	83	15	82	1	2	1.087	2.5	10	0	0	0	3.0	4.0
MSN228-5 <sup>LBR</sup>	297	411	72	27	72	0	1	1.088	1.0	0	0	0	0	3.0	4.5
MSL006-AY	292	324	90	9	87	3	1	1.088	1.5	0	15	0	0	4.0	3.0
ARS4008-1	275	333	83	9	79	4	8	1.079	4.0	0	5	0	5	1.8	2.0
MSL045-AY <sup>LBR</sup>	272	297	92	8	89	3	0	1.077	1.5	0	0	0	0	3.0	2.0
MSL183-AY <sup>LBR</sup>	269	327	82	17	82	0	1	1.073	1.0	0	0	0	0	2.0	2.5
MSN084-11	250	261	96	4	74	21	0	1.069	1.5	5	0	0	35	3.0	4.0
<b>ONAWAY</b>	<b>247</b>	<b>287</b>	<b>86</b>	<b>10</b>	<b>83</b>	<b>3</b>	<b>4</b>	<b>1.070</b>	<b>4.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.0</b>	<b>1.0</b>
MSM417-A <sup>LBR</sup>	245	304	81	18	79	1	1	1.089	1.0	40	0	0	0	2.7	2.5
MSN077-2	240	262	92	8	90	2	0	1.084	1.0	0	0	0	0	3.0	4.0
MSN084-3	213	229	93	6	88	5	1	1.075	1.5	0	0	0	15	2.0	3.0
MSL024-AY <sup>LBR</sup>	210	297	71	28	71	0	1	1.077	2.0	0	5	0	0	2.3	1.0
MSL175-1	166	171	97	3	80	17	0	1.077	1.5	0	0	0	0	2.0	3.0
NDMS7994-1RUS	140	255	55	44	54	1	1	1.089	2.5	0	0	0	0	0.0	2.0
MSM143-A <sup>LBR</sup>	138	193	72	28	72	0	0	1.082	1.0	0	0	0	0	1.5	1.5
MSM224-2 <sup>LBR</sup>	138	161	86	14	86	0	0	1.079	2.5	5	0	0	0	3.0	1.0
MSM148-A <sup>LBR</sup>	132	204	64	35	64	0	0	1.091	1.0	0	0	0	0	1.0	3.5
MEAN	233	283						1.081							
LSD <sub>0.05</sub>	87	79						0.003							

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

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

<sup>5</sup>MATURITY RATING: August 24, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 3, 2004

Table 7

TRANSGENIC TRIAL  
MONTCALM RESEARCH FARM  
SEPTEMBER 7, 2004 (127 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP	GR	CHIP SCORE <sup>2</sup>	PERCENT (%) TUBER QUALITY <sup>3</sup>				
	US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC	SCAB <sup>4</sup>
Spunta-G3	354	418	85	11	79	5	4	1.072	2.0	1	6	4	0	1.8	
Spunta-G2	324	380	85	8	79	6	7	1.072	2.0	1	3	1	0	2.0	
<b>Atlantic</b>	<b>313</b>	<b>336</b>	<b>93</b>	<b>5</b>	<b>86</b>	<b>7</b>	<b>2</b>	<b>1.107</b>	<b>1.0</b>	<b>10</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>2.1</b>	
<b>Spunta</b>	<b>234</b>	<b>278</b>	<b>84</b>	<b>8</b>	<b>75</b>	<b>9</b>	<b>8</b>	<b>1.070</b>	<b>2.0</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>2.3</b>	
Atlantic Newleaf	226	262	86	12	83	4	1	1.104	1.0	7	2	1	2	2.0	
Lady Rosetta-5.3	114	210	54	46	54	0	0	1.100	1.5	20	1	2	0	nd	
Lady Rosetta-5.4	113	219	52	48	52	0	0	1.102	1.5	10	0	0	0	nd	
Lady Rosetta-5.1	104	213	49	51	49	0	0	1.094	1.0	13	0	1	0	nd	
Lady Rosetta-5.2	104	193	54	40	54	0	6	1.106	1.5	16	0	0	0	nd	
<b>Lady Rosetta</b>	<b>97</b>	<b>200</b>	<b>49</b>	<b>51</b>	<b>49</b>	<b>0</b>	<b>1</b>	<b>1.102</b>	<b>1.5</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.0</b>	
Lady Rosetta-5.6	67	158	43	56	43	0	1	1.099	1.5	2	0	0	0	nd	
MEAN	186	261						1.093							
LSD <sub>0.05</sub>															

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

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

<sup>4</sup>SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.  
nd = no data

Planted May 3, 2004

Table 8A

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICSWATER MANAGEMENT TRIAL: STANDARD IRRIGATION TREATMENT  
MONTCALM RESEARCH FARM  
SEPTEMBER 24, 2004 (130 DAYS)

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>3</sup>					MAT <sup>5</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	
ATX91137-1RU	366	410	89	9	84	5	1	1.076	0	0	0	0	4.7
MSJ080-1	360	387	93	6	86	7	1	1.084	7	3	0	0	4.0
BOULDER	357	393	91	2	56	35	8	1.082	13	0	0	0	5.0
MSE018-1	349	390	90	8	82	8	2	1.092	20	3	0	0	5.0
CO089097-2R	332	373	89	10	87	2	1	1.083	0	13	0	0	3.7
NDTX4271-5R	323	362	89	9	87	2	1	1.073	0	0	0	0	3.0
MSJ147-1	321	345	93	7	92	1	0	1.094	13	0	0	0	4.3
<b>Atlantic</b>	<b>313</b>	<b>346</b>	<b>90</b>	<b>9</b>	<b>89</b>	<b>2</b>	<b>0</b>	<b>1.103</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>4.7</b>
Michigan Purple	308	328	94	4	87	7	2	1.077	3	0	0	3	3.0
MSI049-A	295	329	90	10	88	1	0	1.078	0	0	0	0	3.0
NDTX4304-1R	294	326	90	9	89	1	1	1.062	0	7	0	0	2.0
MSG227-2	279	307	91	8	85	5	1	1.088	10	0	0	0	4.0
MSJ461-1	276	368	75	25	75	0	0	1.085	0	3	10	0	5.0
<b>Onaway</b>	<b>268</b>	<b>319</b>	<b>84</b>	<b>7</b>	<b>81</b>	<b>3</b>	<b>9</b>	<b>1.069</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>2.7</b>
<b>Snowden</b>	<b>264</b>	<b>302</b>	<b>87</b>	<b>13</b>	<b>84</b>	<b>3</b>	<b>0</b>	<b>1.096</b>	<b>13</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>4.0</b>
BTX1544-2W/Y	254	286	89	11	89	0	0	1.082	3	0	0	0	2.0
MSJ317-1	200	268	74	23	74	0	2	1.086	13	0	0	0	5.0
<b>Russet Norkotah</b>	<b>199</b>	<b>255</b>	<b>78</b>	<b>16</b>	<b>72</b>	<b>6</b>	<b>6</b>	<b>1.077</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4.0</b>
MSH228-6	192	215	90	5	87	3	5	1.086	27	13	0	0	4.0
MSE192-8RUS	105	193	54	43	54	0	2	1.078	0	3	0	0	2.7
MEAN	283	325						1.083					3.8
LSD <sub>0.05</sub>	50	51						0.003					0.9

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.<sup>2</sup>CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.<sup>3</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. **Percent of 30 Oversize and/or A-size tubers cut.**<sup>4</sup>SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.<sup>5</sup>MATURITY RATING: Taken August 12, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 17, 2004

Table 8B

MICHIGAN STATE UNIVERSITY

POTATO BREEDING and GENETICS

**WATER MANAGEMENT TRIAL: NON-IRRIGATED TREATMENT  
MONTCALM RESEARCH FARM  
SEPTEMBER 15, 2004 (132 DAYS)**

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>3</sup>					MAT <sup>5</sup>
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	
Michigan Purple	227	265	86	11	85	1	4	1.081	0	0	0	0	1.7
<b>Atlantic</b>	<b>212</b>	<b>243</b>	<b>87</b>	<b>10</b>	<b>86</b>	<b>1</b>	<b>2</b>	<b>1.097</b>	<b>3</b>	<b>13</b>	<b>7</b>	<b>7</b>	<b>2.0</b>
MSI049-A	202	255	79	18	79	1	3	1.075	0	0	0	0	1.0
NDTX4304-1R	186	226	82	16	80	2	2	1.064	0	7	0	3	1.0
MSJ080-1	186	208	89	10	87	2	1	1.080	0	3	0	0	2.0
Boulder	181	237	77	8	74	3	16	1.090	23	0	0	0	3.7
BTX1544-2W/Y	176	214	83	16	82	1	2	1.078	0	3	0	3	1.0
<b>Snowden</b>	<b>173</b>	<b>226</b>	<b>77</b>	<b>22</b>	<b>77</b>	<b>0</b>	<b>1</b>	<b>1.090</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>1.7</b>
CO89097-2R	173	245	71	25	70	1	4	1.078	0	7	0	0	1.0
<b>Onaway</b>	<b>170</b>	<b>211</b>	<b>80</b>	<b>12</b>	<b>80</b>	<b>1</b>	<b>7</b>	<b>1.074</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>1.0</b>
ATX91137-1RU	164	242	68	29	68	0	3	1.077	3	10	0	0	1.0
MSJ147-1	161	210	77	23	77	0	0	1.092	0	7	0	0	2.7
MSE018-1	155	197	79	19	78	1	2	1.090	0	23	0	0	3.0
MSJ461-1	147	221	66	33	66	0	1	1.079	0	3	0	0	2.0
MSH228-6	143	200	71	17	69	2	12	1.089	0	7	0	0	3.0
NDTX4271-5R	141	181	78	19	76	2	3	1.066	0	3	0	0	1.0
MSJ317-1	133	176	76	20	76	0	4	1.081	0	27	0	0	4.7
MSG227-2	128	175	73	25	73	0	2	1.091	0	0	7	3	2.0
<b>Russet Norkotah</b>	<b>74</b>	<b>131</b>	<b>56</b>	<b>39</b>	<b>56</b>	<b>0</b>	<b>5</b>	<b>1.069</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>1.3</b>
MSE192-8RUS	35	131	27	73	27	0	0	1.073	0	0	0	0	1.0
MEAN	158	210						1.081					1.9
LSD <sub>0.05</sub>	44	42						0.005					0.5

<sup>1</sup>SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

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

<sup>3</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. **Percent of 30 Oversize and/or A-size tubers cut.**

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

<sup>5</sup>MATURITY RATING: Taken August 12, 2004; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 5, 2004

**Table 9**

**2002-2004 SCAB DISEASE TRIAL SUMMARY  
SCAB NURSERY, EAST LANSING, MI**

LINE	2004 RATING	2004 WORST	2004 N	2003 RATING	2003 WORST	2003 N	2002 RATING	2002 WORST	2002 N
<i>Sorted by ascending 2004 Rating;</i>									
A8254-2BRUS	0.0	0	4	0.0	0	3	-	-	-
<b>Goldrush</b>	<b>0.0</b>	<b>0</b>	<b>4</b>	<b>1.0</b>	<b>1</b>	<b>2</b>	<b>0.3</b>	<b>1</b>	<b>3</b>
MSND7994-1	0.0	0	4	-	-	-	-	-	-
Silverton Russet	0.0	0	4	0.3	1	3	-	-	-
AC89536-5RUS	0.3	0	4	0.0	0	3	0.0	0	2
Liberator	0.3	1	4	0.0	0	3	0.0	0	2
Millenium Russet	0.3	1	4	0.7	1	3	0.0	0	3
A8893-1	0.5	1	2	-	-	-	0.0	0	3
Keystone Russet	0.5	1	4	0.5	1	2	0.5	1	2
Stampede Russet	0.5	1	2	0.3	1	3	-	-	-
Keuka Gold	0.7	1	3	-	-	-	-	-	-
Dakota Jewel	0.8	1	4	1.0	1	3	0.7	1	3
GemStar (A9014-2)	0.8	1	4	1.0	1	3	0.3	1	3
MSG227-2	0.8	1	4	0.8	2	6	0.5	1	2
MSJ036-A	0.8	1	4	1.3	2	3	0.5	1	2
MSL025-ARUS	0.8	1	4	0.7	1	3	-	-	-
<b>Russet Burbank</b>	<b>0.8</b>	<b>1</b>	<b>4</b>	<b>0.5</b>	<b>2</b>	<b>6</b>	-	-	-
<b>Pike</b>	<b>0.9</b>	<b>1</b>	<b>7</b>	<b>1.5</b>	<b>2</b>	<b>8</b>	-	-	-
Atlantic 5.4	1.0	2	3	-	-	-	-	-	-
CV89023-2R	1.0	1	1	3.0	4	3	3.0	3	3
FL1922	1.0	1	4	1.3	2	3	-	-	-
Lady Rosetta	1.0	1	5	2.0	5	3	-	-	-
MSE192-8RUS	1.0	3	3	0.3	1	3	0.3	0	3
MSE202-3RUS	1.0	1	3	0.3	1	3	0.0	0	5
MSI152-A	1.0	1	3	3.0	3	3	2.0	3	3
MSJ033-10Y	1.0	1	3	-	-	-	1.0	1	3
MSL045-AY	1.0	1	2	3.0	3	1	-	-	-
MSM051-3	1.0	1	4	1.0	1	1	-	-	-
MSM060-3	1.0	1	4	0.7	1	3	-	-	-
MSM148-A	1.0	1	2	-	-	-	-	-	-
MSM185-1	1.0	1	4	3.3	5	3	-	-	-
MSN251-1Y	1.0	1	1	-	-	-	-	-	-
<b>Onaway</b>	<b>1.0</b>	<b>1</b>	<b>5</b>	<b>1.4</b>	<b>3</b>	<b>9</b>	<b>1.7</b>	<b>3</b>	<b>7</b>
V1102-1	1.0	1	2	-	-	-	-	-	-
Villetta Rose	1.0	2	4	-	-	-	-	-	-
W1443	1.0	1	4	-	-	-	-	-	-
W2145-11	1.0	1	4	-	-	-	-	-	-
MSH228-6	1.3	2	4	0.7	1	3	1.3	2	3
MSI005-20Y	1.3	2	4	1.0	1	3	2.0	2	1

LINE	2004 RATING	2004 WORST	2004 N	2003 RATING	2003 WORST	2003 N	2002 RATING	2002 WORST	2002 N
<i>Sorted by ascending 2004 Rating;</i>									
MSK061-4	1.3	2	4	2.0	3	3	2.0	1	1
MSK476-1	1.3	2	4	1.0	1	3	1.0	2	2
MSL211-3	1.3	2	4	1.0	1	1	-	-	-
MSM037-3	1.3	2	4	-	-	-	-	-	-
MSM164-2Y	1.3	2	4	1.3	2	3	-	-	-
MSN094-3	1.3	2	4	-	-	-	-	-	-
MSN098-4	1.3	2	4	-	-	-	-	-	-
<b>Russet Norkotah</b>	<b>1.3</b>	<b>2</b>	<b>4</b>	<b>2.0</b>	<b>2</b>	<b>3</b>	-	-	-
MSJ126-9Y	1.3	2	3	1.3	2	3	-	-	-
MSK409-1	1.3	2	3	0.7	1	3	2.0	2	2
MSM046-4	1.3	2	3	0.7	1	3	-	-	-
MSM070-1	1.3	2	3	-	-	-	-	-	-
MSN105-1	1.3	2	3	-	-	-	-	-	-
MSN144-2	1.3	2	3	-	-	-	-	-	-
W2128-8	1.4	2	8	-	-	-	-	-	-
A9305-10	1.5	2	4	1.7	2	3	-	-	-
FL1867	1.5	2	4	1.5	3	4	-	-	-
FV12486-2	1.5	2	2	-	-	-	-	-	-
MN96001-2	1.5	2	4	-	-	-	-	-	-
MSK009-B	1.5	2	4	3.0	3	3	-	-	-
MSK498-1Y	1.5	2	4	2.7	4	3	1.3	2	3
MSM143-A	1.5	2	2	-	-	-	-	-	-
MSM288-2Y	1.5	2	4	2.5	3	2	-	-	-
MSN026-4	1.5	2	4	-	-	-	-	-	-
MSN174-3	1.5	2	4	-	-	-	-	-	-
NorValley	1.5	2	4	1.0	1	1	2.0	2	3
NY126	1.5	2	4	-	-	-	-	-	-
NY132	1.5	2	4	-	-	-	-	-	-
UEC	1.5	2	4	1.3	2	6	1.5	2	4
W2133-1	1.5	2	4	-	-	-	-	-	-
MSL235-AY	1.7	2	3	-	-	-	-	-	-
MSM170-B	1.7	2	3	-	-	-	-	-	-
<b>Red Norland</b>	<b>1.7</b>	<b>2</b>	<b>3</b>	<b>0.7</b>	<b>1</b>	<b>3</b>	-	-	-
A95409-1	1.8	2	4	0.0	0	2	-	-	-
ARS4008-1	1.8	2	4	-	-	-	-	-	-
B0766-3	1.8	2	4	-	-	-	-	-	-
Boulder	1.8	3	4	2.0	3	3	2.5	3	2
MSH094-8	1.8	3	4	2.3	3	3	2.3	3	3
MSJ147-1	1.8	2	4	1.7	3	3	2.0	2	3
MSJ204-3	1.8	2	4	1.0	2	3	2.0	2	2
MSJ461-1	1.8	2	4	2.0	2	3	2.7	3	3
MSK125-3	1.8	2	4	2.2	3	6	-	-	-
MSL228-1	1.8	3	4	1.3	2	3	-	-	-
MSM039-B	1.8	2	4	-	-	-	-	-	-



LINE	2004 RATING	2004 WORST	2004 N	2003 RATING	2003 WORST	2003 N	2002 RATING	2002 WORST	2002 N
<i>Sorted by ascending 2004 Rating;</i>									
MSN090-2	1.8	2	4	-	-	-	-	-	-
MSN179-5	1.8	2	4	-	-	-	-	-	-
MSN184-2	1.8	2	4	-	-	-	-	-	-
MSN236-1	1.8	2	4	-	-	-	-	-	-
SPG3	1.8	2	4	-	-	-	-	-	-
W1773-7	1.8	2	4	0.7	1	3	2.7	3	3
W2154-1	1.8	2	4	-	-	-	-	-	-
W52-26	1.8	2	4	-	-	-	-	-	-
<b>Snowden</b>	<b>1.9</b>	<b>3</b>	<b>8</b>	<b>2.4</b>	<b>3</b>	<b>12</b>	<b>2.0</b>	<b>2</b>	<b>5</b>
Atlantic Newleaf	2.0	3	4	-	-	-	-	-	-
FL1833	2.0	3	4	1.7	2	3	-	-	-
MN99380-1	2.0	2	3	-	-	-	-	-	-
Modoc	2.0	2	3	-	-	-	-	-	-
MSH112-6	2.0	3	4	2.3	3	3	2.3	3	3
MSK437-A	2.0	3	4	2.0	2	3	-	-	-
MSL007-B	2.0	3	4	0.7	1	3	-	-	-
MSL072-C	2.0	2	2	-	-	-	-	-	-
MSL175-1	2.0	3	3	2.0	2	3	-	-	-
MSL183-AY	2.0	2	2	-	-	-	-	-	-
MSL268-D	2.0	3	3	-	-	-	-	-	-
MSL292-A	2.0	3	3	-	-	-	-	-	-
MSL794-BRUS	2.0	3	4	-	-	-	-	-	-
MSM053-4	2.0	3	4	-	-	-	-	-	-
MSM061-A	2.0	2	1	-	-	-	-	-	-
MSM084-3	2.0	2	1	-	-	-	-	-	-
MSM205-A	2.0	3	4	3.0	4	3	-	-	-
MSN077-2	2.0	2	2	-	-	-	-	-	-
MSN085-2Y	2.0	3	4	-	-	-	-	-	-
MSN125-2	2.0	3	3	-	-	-	-	-	-
MSN209-3	2.0	2	2	-	-	-	-	-	-
MSN267-14Y	2.0	3	3	-	-	-	-	-	-
SPG2	2.0	3	4	-	-	-	-	-	-
<b>Atlantic</b>	<b>2.1</b>	<b>3</b>	<b>15</b>	<b>2.3</b>	<b>4</b>	<b>11</b>	<b>2.7</b>	<b>4</b>	<b>11</b>
MN99460-1	2.3	3	4	-	-	-	-	-	-
MSH095-4	2.3	3	8	1.7	2	3	2.0	3	3
MSI049-A	2.3	3	4	2.3	3	3	2.5	3	2
MSJ080-1	2.3	3	4	2.0	2	3	2.5	3	2
MSK049-A	2.3	3	4	-	-	-	2.3	3	3
MSL766-1	2.3	3	4	2.2	3	6	-	-	-
MSM224-1	2.3	3	4	-	-	-	-	-	-
MSN188-1	2.3	4	4	-	-	-	-	-	-
MSN228-5	2.3	3	4	-	-	-	-	-	-
SP6a3	2.3	3	4	-	-	-	-	-	-
Spunta	2.3	3	4	3.0	5	3	-	-	-

LINE	2004 RATING	2004 WORST	2004 N	2003 RATING	2003 WORST	2003 N	2002 RATING	2002 WORST	2002 N
<i>Sorted by ascending 2004 Rating;</i>									
Stirling	2.3	3	4	2.7	4	3	-	-	-
W2233-2	2.3	3	4	-	-	-	-	-	-
AF2211-9	2.3	3	3	-	-	-	-	-	-
MSL024-AY	2.3	3	3	-	-	-	-	-	-
MSL179-DY	2.3	3	3	-	-	-	-	-	-
MSM183-1Y	2.3	3	3	-	-	-	-	-	-
Wallowa Russet	2.3	4	3	-	-	-	-	-	-
FL1879	2.5	3	4	-	-	-	-	-	-
MSF099-3	2.5	3	4	2.7	4	3	3.7	4	3
MSJ317-1	2.5	3	4	3.7	4	3	2.5	3	2
MSK136-2	2.5	3	4	2.0	2	3	-	-	-
MSM051-A	2.5	3	4	-	-	-	-	-	-
MSM171-A	2.5	4	4	2.0	2	3	-	-	-
MSH031-5	2.7	3	3	1.7	2	3	2.3	3	3
MSL106-AY	2.7	3	3	-	-	-	-	-	-
MSM057-D	2.7	3	3	-	-	-	-	-	-
MSM417-A	2.7	4	3	4.0	5	2	-	-	-
A91814-5	2.8	3	4	-	-	-	-	-	-
Jacqueline Lee	2.8	3	4	2.5	3	6	2.7	3	3
MSH067-3	2.8	3	4	2.0	3	3	3.0	5	3
MSK128-A	2.8	4	4	-	-	-	-	-	-
MN96013-1	3.0	3	1	-	-	-	-	-	-
MSM137-2	3.0	3	4	-	-	-	-	-	-
MSM224-2	3.0	4	3	-	-	-	-	-	-
MSM409-2Y	3.0	4	4	2.7	3	3	-	-	-
MSN084-11	3.0	3	2	-	-	-	-	-	-
<b>Red Pontiac</b>	<b>3.0</b>	<b>3</b>	<b>4</b>	<b>3.2</b>	<b>4</b>	<b>6</b>	<b>3.0</b>	<b>3</b>	<b>3</b>
<b>Yukon Gold</b>	<b>3.0</b>	<b>4</b>	<b>4</b>	<b>2.3</b>	<b>3</b>	<b>3</b>	<b>4.0</b>	<b>5</b>	<b>3</b>
Michigan Purple	3.3	4	4	2.3	4	6	2.7	3	3
MSL006-AY	4.0	4	1	-	-	-	-	-	-
MSM170-2	4.0	5	4	-	-	-	-	-	-

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

LSD<sub>0.05</sub> = 1.0

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight ( *Phytophthora infestans* ) in inoculated field trials in 2003 at the MSU Muck Soils Research Farm.

Table 10

2004 LATE BLIGHT VARIETY TRIAL  
MUCK SOILS RESEARCH FARM

LINE	RAUDPC <sup>1</sup>			LINE	RAUDPC <sup>1</sup>
	MEAN	Female	Male		MEAN
<i>Sorted by ascending RAUDPC value:</i>					
<b><i>Foliar Resistance Category:</i></b>				<b><i>Foliar Susceptibility Category (select lines)<sup>2</sup>:</i></b>	
MSL072-C	0.0	MSE033-1R	Tollocan	Snowden	15.7
MSL268-D	0.0	NY103	Jacqueline Lee	FL1879	16.4
MSM183-1Y	0.0	Torridon	Jacqueline Lee	FL1833	20.6
MSM137-2	0.3	Eramosa	Jacqueline Lee	B0766-3	22.2
MSL766-1	0.3	B0718-3	A91846-5R	Red Pontiac	22.3
Jacqueline Lee	0.4	Tollocan	Chaleur	Pike	22.4
Stirling	0.4	SCRI variety		Atlantic	22.4
MSM148-A	0.5	Jacqueline Lee	MSE028-1	Millenium Russet	22.6
MSL045-AY	0.7	MSB107-1	Jacqueline Lee	UEC	22.8
MSI152-A	0.7	Mainestay	B0718-3	FL1867	23.9
MSJ461-1	0.8	Tollocan	NY88	Keystone Russet	24.6
MSL794-Brus	1.3	A95053-61	A91194-4	NorValley	25.2
MSL603-319	1.3	Jacqueline Lee	MSG227-2	Dakota Jewel	26.1
MSL183-AY	1.6	Boulder	Tollocan	Keuka Gold	26.6
MSM224-1	1.7	MSB106-7	Jacqueline Lee	Silverton Russet	27.1
MSL211-3	2.0	MSG301-9	Jacqueline Lee	Yukon Gold	27.9
MSK128-A	2.3	Jacqueline Lee	MSH094-3	Wallowa	28.1
MSL024-AY	2.3	AWN86514-2	MSF020-23	Goldrush	28.6
MSM143-A	2.4	MSE048-2Y	Jacqueline Lee	Onaway	29.3
MSJ317-1	2.6	B0718-3	Prestile	Russet Burbank	29.3
MSK136-2	2.9	Greta	B0718-3	Red Norland	30.1
MSM171-A	3.0	Stirling	MSE221-1	Modoc	30.1
MSN209-3	3.9	MSJ462-2	MSJ319-1	Villeta Rose	30.6
MSN251-1Y	4.0	Torridon	MSG227-2	Michigan Purple	35.1
MSN228-5	5.3	ND6947B-13	Jacqueline Lee	FL1922	35.6
W52-26	5.8	Cornell University breeding line			
MSN105-1	7.4	MSG141-3	Jacqueline Lee		
MSK049-A	7.6	Brodick	MSH142-2		
MSM409-2Y	8.5	MSJ456-4	MSJ365-6		
MSI049-A	9.4	Brodick	MSC121-7		
LSD <sub>0.05</sub>	10.3				

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

<sup>2</sup> 111 potato varieties and advanced breeding lines were tested in all. For brevity purposes, only selected varieties and breeding lines are listed. Varieties and breeding lines with a mean RAUDPC value of 10.3 and less are considered *Phytophthora infestans* isolates Pi02-007(US8), Pi99-2(US14), Pi95-2(US6), Pi95-3(US1) were inoculated 30 July 2004. Planted as a randomized complete block design consisting of 3 replications of 4 hill plots on 23 June 2004.

Table 11

2004 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	
<b>DATE OF HARVEST: LATE HARVEST</b>								
FL1922	25						100	0.0
Boulder	16	5	2	2			64	0.6
Liberator	13	6	4	2			52	0.8
MSH094-8	9	12	2	2			36	0.9
Michigan Purple	11	7	6	1			44	0.9
MSH228-6	9	9	7				36	0.9
MSJ147-1	8	10	6	1			32	1.0
MSJ461-1 <sup>LBR</sup>	8	9	6	2			32	1.1
MSG227-2	7	9	7	2			28	1.2
MSJ080-1	8	8	7	1	1		32	1.2
FL1867	5	13	3	4			20	1.2
B0766-3	6	9	7	3			24	1.3
Jacqueline Lee <sup>LBR</sup>	8	6	7	4			32	1.3
MSF099-3	5	9	9	2			20	1.3
MSH095-4	4	11	7	2	1		16	1.4
FL1879	6	5	10	4			24	1.5
MSH067-3	3	7	9	6			12	1.7
<b>Snowden</b>	<b>3</b>	<b>6</b>	<b>11</b>	<b>5</b>			<b>12</b>	<b>1.7</b>
UEC	1	8	9	6	1		4	1.9
FL1833	3	6	6	8	2		12	2.0
<b>Atlantic</b>	<b>1</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>2.4</b>

\* Twenty-five A-size tuber samples were collected at harvest, held at 50 F at least 12 hours, and placed in a six-sided plywood drum and rotated ten times to produce simulated bruising. Samples were abrasive-peeled and scored on November 9, 2004.

The table is presented in ascending order of average number of spots per tuber.

<sup>LBR</sup> Line(s) demonstrated foliar resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials at the MSU Muck Soils Research Farm.

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
	0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
<b>RUSSET and LONG TYPES TRIAL</b>								
Keystone Russet	24	1					96	0.0
AC Stampede Russet-NCR	24	1					96	0.0
<b>Russet Norkotah-NCR</b>	<b>23</b>	<b>2</b>					<b>92</b>	<b>0.1</b>
A8254-2BRUS	22	3					88	0.1
<b>GoldRush</b>	<b>22</b>	<b>2</b>	<b>1</b>				<b>88</b>	<b>0.2</b>
MSL025-ARUS	20	5					80	0.2
MSE202-3RUS	19	6					76	0.2
Silverton Russet	19	6					76	0.2
A9305-10	21	2	1	1			84	0.3
ND7882b-7rus-NCR	18	5	2				72	0.4
MSE192-8RUS	17	6	2				68	0.4
V1102-1-NCR	18	4	3				72	0.4
Wallowa Russet	17	6	2				68	0.4
A8893-1	13	12					52	0.5
GemStar(A9014-2RUS)-NCR	16	6	3				64	0.5
AC89536-5rus	14	7	4				56	0.6
<b>Russet Burbank-NCR</b>	<b>11</b>	<b>12</b>	<b>2</b>				<b>44</b>	<b>0.6</b>
MN99460-21-NCR	8	9	5	3			32	1.1
MSL794-BRUS <sup>LBR</sup>	4	8	8	5			16	1.6
A95409-1	7	3	8	6	1		28	1.6
Millenium Russet	4	5	11	1	4		16	1.8
<b>ADAPTATION TRIAL, CHIP-PROCESSING LINES</b>								
MSK409-1	20	5					80	0.2
MSK009-B	18	7					72	0.3
W52-26 <sup>LBR</sup>	18	3	3	1			72	0.5
MSM046-4	12	8	5				48	0.7
MSK128-A <sup>LBR</sup>	11	9	4	1			44	0.8
MSK498-1Y	9	12	3	1			36	0.8
MSL766-1 <sup>LBR</sup>	10	10	4		1		40	0.9
W2128-8	15	5	2	1		2	60	0.9
MSJ036-A	9	9	7				36	0.9
MSK061-4	7	13	5				28	0.9
MSK136-2 <sup>LBR</sup>	6	15	4				24	0.9
NY126	11	7	5	2			44	0.9
MSJ126-9Y	8	8	7	2			32	1.1
MSM051-3	6	10	9				24	1.1
<b>Pike</b>	<b>7</b>	<b>11</b>	<b>4</b>	<b>3</b>			<b>28</b>	<b>1.1</b>
W2233-2	9	8	4	2	2		36	1.2

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
	0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
W2154-1	4	13	6	2			16	1.2
AF2211-9	2	11	11	1			8	1.4
MSK476-1	4	8	9	4			16	1.5
MSK049-A	4	8	9	3	1		16	1.6
W2145-11	5	6	6	6	2		20	1.8
W2133-1	3	8	7	4	3		12	1.8
<b>Snowden</b>	<b>3</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>1</b>		<b>12</b>	<b>1.9</b>
NY132	1	7	10	7			4	1.9
MSL007-B	3	5	8	8	1		12	2.0
<b>Atlantic</b>	<b>3</b>	<b>2</b>	<b>11</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>12</b>	<b>2.2</b>

#### ADAPTATION TRIAL, TABLESTOCK LINES

MSK437-A	22	3					88	0.1
Dakota Jewel	21	3	1				84	0.2
Modoc	20	5					80	0.2
MSM037-3	20	4	1				80	0.2
MSI049-A <sup>MRLBR</sup>	19	6					76	0.2
MSJ033-10Y	18	7					72	0.3
MSL228-1	17	8					68	0.3
MSM171-A <sup>LBR</sup>	17	7	1				68	0.4
<b>Yukon Gold</b>	<b>17</b>	<b>7</b>	<b>1</b>				<b>68</b>	<b>0.4</b>
MSL072-C <sup>LBR</sup>	17	6	2				68	0.4
Keuka Gold	15	9	1				60	0.4
MSL211-3 <sup>LBR</sup>	13	11	1				52	0.5
MSJ204-3	14	8	3				56	0.6
<b>Onaway</b>	<b>15</b>	<b>7</b>	<b>2</b>	<b>1</b>			<b>60</b>	<b>0.6</b>
MSI005-20Y	13	6	6				52	0.7
MSM137-2 <sup>LBR</sup>	10	10	4	1			40	0.8
MSK125-3 <sup>MRLBR</sup>	9	11	3	2			36	0.9
MSM224-1 <sup>LBR</sup>	13	6	3	2		1	52	0.9
MSM183-1Y <sup>LBR</sup>	1	5	12	6	1		4	2.0

#### PRELIMINARY TRIAL, CHIP-PROCESSING LINES

MSN098-4	24	1					96	0.0
MSN209-3 <sup>LBR</sup>	23	2					92	0.1
MSM051-A	22	3					88	0.1
MSM170-B	20	5					80	0.2
MSN094-3	21	3	1				84	0.2
MSN125-2	20	5					80	0.2
MSN184-2	21	3	1				84	0.2

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
	0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
MSL235-AY <sup>MRLBR</sup>	20	4	1				80	0.2
MSN065-2	20	4	1				80	0.2
MSM188-1 <sup>MRCPB</sup>	19	5	1				76	0.3
MSN174-3	19	5	1				76	0.3
MSM070-1	19	5	1				76	0.3
MSN105-1 <sup>LBR</sup>	17	8					68	0.3
MSN144-2	18	6		1			72	0.4
<b>Pike</b>	<b>17</b>	<b>6</b>	<b>2</b>				<b>68</b>	<b>0.4</b>
MSM164-2Y	16	7	2				64	0.4
MSM408-B	18	4	2	1			72	0.4
MSM060-3	14	10	1				56	0.5
MSL106-AY	17	3	4	1			68	0.6
MSN026-4	13	10	2				52	0.6
MSM039-B	13	7	4	1			52	0.7
MSN236-1	14	5	5	1			56	0.7
MSM053-4	12	10		3			48	0.8
MSM205-A	10	8	7				40	0.9
MSN179-5	10	10	3	2			40	0.9
MSL268-D <sup>LBR</sup>	11	8	3	3			44	0.9
MSM185-1 <sup>MRCPB</sup>	9	10	5	1			36	0.9
MSM409-2Y	7	12	5	1			28	1.0
MSM057-D	5	10	8	2			20	1.3
MSN085-2Y	6	7	10	2			24	1.3
MSL292-A	5	10	3	6	1		20	1.5
MSN251-1Y <sup>LBR</sup>	7	6	5	6	1		28	1.5
<b>Atlantic</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>7</b>		<b>1</b>	<b>20</b>	<b>1.7</b>
<b>Snowden</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>16</b>	<b>1.8</b>

**PRELIMINARY TRIAL, TABLESTOCK LINES**

MSN084-11	24	1					96	0.0
MSL183-AY <sup>LBR</sup>	23	2					92	0.1
MSN084-3	22	3					88	0.1
MSM143-A <sup>LBR</sup>	21	4					84	0.2
MSN077-2	21	2	2				84	0.2
MSL175-1	18	6	1				72	0.3
NDMS7994-1RUS	13	12					52	0.5
MSM148-A <sup>LBR</sup>	14	9	2				56	0.5
MSM417-A <sup>LBR</sup>	13	8	3	1			52	0.7
ARS4008-1	10	10	5				40	0.8
MSL045-AY <sup>LBR</sup>	10	11	3	1			40	0.8

ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
	0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
	MSL006-AY	11	6	6	2			44
MSN228-5 <sup>LBR</sup>	10	9	2	3	1		40	1.0
MSN188-1	6	11	7	1			24	1.1
MSL024-AY <sup>LBR</sup>	7	11	4	2	1		28	1.2
<b>Onaway</b>	<b>4</b>	<b>13</b>	<b>3</b>	<b>4</b>	<b>1</b>		<b>16</b>	<b>1.4</b>
MSL179-AY <sup>LBR</sup>	7	7	4	6	1		28	1.5

#### WATER MANAGEMENT TRIAL

BTX1544-2W/Y	25						100	0.0
MSI049-A <sup>MRLBR</sup>	25						100	0.0
ATX91137-1RU	23	2					92	0.1
MSJ317-1 <sup>LBR</sup>	23	2					92	0.1
NDTX4271-5R	23	2					92	0.1
NDTX4304-1R	23	2					92	0.1
<b>Russet Norkotah</b>	<b>23</b>	<b>2</b>					<b>92</b>	<b>0.1</b>
MSE192-8RUS	22	3					88	0.1
MSJ080-1	21	3	1				84	0.2
MSJ461-1 <sup>LBR</sup>	22	2			1		88	0.2
MSG227-2	19	4	2				76	0.3
<b>Onaway</b>	<b>19</b>	<b>5</b>		<b>1</b>			<b>76</b>	<b>0.3</b>
CO089097-2R	18	5	2				72	0.4
Boulder	15	10					60	0.4
MSH228-6	16	8	1				64	0.4
Michigan Purple	15	11					60	0.4
MSJ147-1	12	9	3	1			48	0.7
<b>Snowden</b>	<b>11</b>	<b>8</b>	<b>3</b>	<b>3</b>			<b>44</b>	<b>0.9</b>
<b>Atlantic</b>	<b>8</b>	<b>9</b>	<b>6</b>	<b>2</b>			<b>32</b>	<b>1.1</b>
MSE018-1	5	10	5	5			20	1.4

#### TRANSGENIC TRIAL

SPG2	22	3					88	0.1
SPG3	22	3					88	0.1
<b>Spunta</b>	<b>21</b>	<b>4</b>					<b>84</b>	<b>0.2</b>
L.ROSE5.2	18	6		1			72	0.4
L.ROSE5.6	15	9	1				60	0.4
L.ROSE5.1	13	7	4	1			52	0.7
<b>Lady Rosetta</b>	<b>7</b>	<b>14</b>	<b>3</b>	<b>1</b>			<b>28</b>	<b>0.9</b>
L.ROSE5.4	6	13	6				24	1.0
L.ROSE5.3	5	10	6	4			20	1.4
Atlantic Newleaf	7	3	8	5	2		28	1.7
<b>Atlantic</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>24</b>	<b>2.3</b>



ENTRY	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
	0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER

**SNACK FOOD ASSOCIATION: BRUISE SAMPLES**

MSJ461-1 <sup>LBR</sup>	17	5	2	1			68	0.5
A91790-13	16	7	1		1		64	0.5
MSF099-3	13	8	4				52	0.6
<b>Atlantic</b>	<b>10</b>	<b>11</b>	<b>3</b>	<b>1</b>			<b>40</b>	<b>0.8</b>
ND5822C-7	8	15	1	1			32	0.8
W1773-7	9	12	4				36	0.8
<b>Snowden</b>	<b>10</b>	<b>5</b>	<b>9</b>	<b>1</b>			<b>40</b>	<b>1.0</b>
AF2211-9	6	9	8	2			24	1.2
WI201	7	7	7	4			28	1.3
B01240-1	3	8	4	7			12	1.5
NY132	15	1		2	5	2	60	1.5
ND2470-27	4	6	10	2	3		16	1.8

**SNACK FOOD ASSOCIATION: CHECK SAMPLES**

MSJ461-1 <sup>LBR</sup>	25						100	0.0
A91790-13	24	1					96	0.0
MSF099-3	24	1					96	0.0
<b>Snowden</b>	<b>24</b>	<b>1</b>					<b>96</b>	<b>0.0</b>
W1201	23	2					92	0.1
W1773-3	23	2					92	0.1
B01240-1	22	3					88	0.1
AF2211-9	21	4					84	0.2
ND2470-27	21	4					84	0.2
NY132	21	4					84	0.2
ND5822C-7	19	6					76	0.2
<b>Atlantic</b>	<b>18</b>	<b>6</b>	<b>1</b>				<b>72</b>	<b>0.3</b>