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2014 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 Center (MRC). In 2014, we tested over 140 varieties and breeding lines in the replicated variety trials, plus over 150 lines in the National Chip Processing Trial. The variety evaluation also includes disease testing in the scab nursery (Montcalm Research Center) and foliar and tuber late blight evaluation (Clarksville Research Center). The objectives of the evaluations are to identify superior varieties for fresh or chip-processing markets. The varieties were compared in groups according to market class, tuber type, skin color, and to the advancement in selection. Each season, total and marketable yields, specific gravity, tuber appearance, incidence of external and internal defects, chip color (from the field, 45°F (7.2°C) and 50°F (10°C) storage), as well as susceptibilities to common scab, late blight (foliar and tuber), and blackspot bruising are determined.

We would like to acknowledge the collaborative effort of Bruce Sackett, Chris Long and the Potato Breeding Team (especially N. Garrity, M. Alhashany, S. Islam, F. Enciso, S. Mambetova and A. Sardarbekova) for getting the research done.

PROCEDURE

The field variety trials were conducted at the Montcalm Research Center in Entrican, MI. They were planted as randomized complete block designs with two to four replications. The plots were 23 feet (7 m) long and spacing between plants was 10 inches (25.4 cm). Inter-row spacing was 34 inches (86.4 cm). Supplemental irrigation was applied as needed. Nutrient, weed, disease and insect management were similar to recommendations used by the commercial operations. The field experiments were conducted on a sandy loam soil on the Comden ground that was in corn the previous 3 years and in potatoes four years previously.

The most advanced selections were tested in the Advanced trial, representing selections at a stage after the Adaptation Trial. The other field trials were the North Central, Russet, Adaptation (chip-processors and tablestock), Preliminary (chip-

processors and tablestock), the NCPT and the early observational trials. This year, the Advanced and Adaptation chip-processing trials were combined as a single trial.

2014 was the fifth year of the National Chip Processing Trial (NCPT). The purpose of the trial is to evaluate early generation breeding lines from the US public breeding programs for their use in chip-processing. The NCPT has 10 sites (North: NY, MI, WI, ND, OR and South: NC, FL, MO, CA, TX) in addition to a scab trial in MN.

In each of these trials, the yield was graded into four size classes, incidence of external and internal defects in >3.25 in. (8.25 cm) diameter (or 10 oz. (283.5 g) for Russet types) potatoes were recorded. Samples were taken for specific gravity, chipping, disease tests and bruising tests. Chip quality was assessed on 25-tuber composite sample from four replications, taking two slices from each tuber. Chips were fried at 365°F (185°C). The chip color was measured visually with the SFA 1-5 color chart. Tuber samples were also stored at 45°F (7.2°C) and 50°F (10°C) for chip-processing out of storage in January and March. Advanced selections are also placed in the MPIC B.F. Burt Cargill Commercial Demonstration Storage in Entrican, MI for monthly sampling. The lines in the agronomic trials were assessed for common scab resistance at the nursery at the Montcalm Research Farm. There has been very strong scab disease pressure at the new Montcalm Scab Disease Nursery for four years now. The 2014 late blight trial was again conducted at the Clarksville Research Center. Maturity ratings (1 early - 5 late) were taken for all variety trial plots in late August to differentiate early and late maturing lines. The simulated blackspot bruise results for average spots per tuber have also been incorporated into the summary sheets.

RESULTS

A. Advanced and Chip-Processing Trial (Table 1)

The Advanced Trial and the Adaptation Chip-Processing Trial were combined in 2014. A summary of the 20 entries evaluated in the trial results is given in **Table 1**. Overall, the yields for the Advanced trial (133 days) were average, however the Snowden and Atlantic yield was below average. The check varieties for this trial were Snowden, Atlantic, and FL1879. The highest yielding lines were MSV093-1, NY148 and MSR127-2. Vascular discoloration and hollow heart were the predominant internal defects. Specific gravity was very high with all lines above 1.080. All chip-processing entries in the trial had excellent chip-processing quality out of the field, with an SFA score of 1.0. Many of the MSU breeding lines have moderate to strong scab resistance, including: MSL007-B, MSR127-2, McBride, MSR061-1 and Lamoka. MSR061-1, NY148 and MSS428-2 showed resistance to late blight at the CRC trials. The promising MSU chip-processing lines are Manistee (chip quality, high yield, good specific gravity, and shows potential as a long-term storage chipper), MSM246-B (good yield, chip quality and shows potential as a long-term storage chipper) and MSR127-2 (strong yield, high specific gravity, scab resistance, and good chip quality).

B. North Central Regional Trial Entries (Table 2)

The North Central Trial is conducted in a wide range of environments (6 regional locations) to provide adaptability data for the release of new varieties from Michigan, Minnesota, North Dakota, Wisconsin, and Canada. The trial was reformatted to focus on table potatoes. The russet potato lines were included in the Russet trial. Twenty-eight entries were tested in Michigan in 2014. The results are presented in **Table 2**. The best performing MSU line in the trial was MST500-1. It is high yielding with round white table potato with moderate late blight resistance. There was a high percentage of oversized tubers that tended to form hollow heart. Other MSU lines that looked promising were MSS176-1 (late blight resistant), MSQ131-A (late blight resistant) and MSX540-4 (scab and PVY resistant chipper). There are some promising red-skinned entries from Minnesota and North Dakota. Wisconsin has some promising yellow-fleshed lines (W9577-6Y and W6703-1Y).

C. Russet Trial (Table 3)

We continue to increase our russet breeding efforts to reflect the growing interest in russet types in Michigan. In 2014, 17 lines were evaluated after 125 days. The results are summarized in **Table 3**. Russet Norkotah and Silverton Russet were the reference varieties used in the trial. In general, the yields were average for many russet lines while Russet Norkotah had a very low yield. The highest yielding lines were AF3362-1Rus and ATX91137-1Rus, which were also high yielding in 2013. There was incidence of hollow heart in Silverton Russet, W8516-1Rus, W9433-1Rus, W8152-1Rus and Russet Norkotah. Specific gravity measurements were high to above average to below average with Russet Norkotah at 1.073. Off type and cull tubers were found in nearly all lines tested, with the highest being AF4320-7, A03921-2 and AF4124-7. Scab resistance was common among the lines but high susceptibility was observed in A03921-2. No late blight resistance was observed in the lines at the CRC trial.

D. Adaptation Trial (Table 4)

The Adaptation Trial of the tablestock lines was harvested after 126 days and the results are summarized in **Table 4**. The majority of the lines evaluated in the Adaptation Trial were tested in the Preliminary Trial the previous year. Two reference cultivars (Reba and Red Norland) and 15 advanced breeding lines are reported in the tablestock trial. In general, the yields were average and internal defects were low, but some lines had hollow heart incidence (MST500-1, MSS176-1, MSS487-2 and Reba). The highest yielding lines were MST500-1, MSS176-1 and MSQ086-3. These lines have been consistent high yielding lines over the past few years. MSQ086-3 is also verticillium resistant in Wisconsin field experiments, while the other two lines have some late blight resistance. The promising and attractive yellow-fleshed table selection is MSM288-2Y. MSL211-3 is round-oval white with bright skin, early maturity, and excellent internal quality with some late blight resistance. Other promising late blight resistant lines are

MSS576-5SPL, MSS206-2, MSS487-2, MSL211-3 and MSQ131-AS487-2. Besides MSQ440-2 there was little scab resistance observed in these lines tested. We continue to evaluate breeding lines with specialty market potential (purple skin such as MSR186-3P; splashes of color such MSS576-05SPL and Smiley).

E. Preliminary Trials (Tables 5 and 6)

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 (**Table 5**) had 48 entries was harvested after 132 days. Most lines chip-processed well from the field. Specific gravity values were high with Atlantic at 1.088 and Snowden at 1.099. All selections had 1.074 or higher specific gravity with some lines over 1.100. Internal quality was compromised by hollow heart and vascular discoloration. Atlantic has 60% hollow heart and Snowden had 30% vascular discoloration. Promising MSU lines are MSMST191-2Y, MSV507-012, MST094-1, MSV507-001, QSMSU10-02, MSV396-4, MSV507-040, MSV507-198 and MSS167-6 combining yield, specific gravity, and chip quality. We continue to make progress selecting chip-processing with scab resistance with 25 lines in the trial. Three lines had late blight resistance (MSV396-4, QSMSU10-02 and MSV440-6).

Table 6 summarizes 15 tablestock entries evaluated in the Preliminary Trial. Onaway and Reba were the check varieties. This tablestock trial was harvested and evaluated after 125 days. MST148-3, MST386-1P, Granola, MST145-2 and MSU161-1 were the highest yielding lines. This trial also had a low incidence of internal defects. The number of tablestock selections with scab resistance (8) and late blight resistance (6) continue to increase.

F. Potato Common Scab Evaluation (Tables 7 and 8)

Each year, a replicated field trial is conducted to assess resistance to common scab. The scab trial is now located at the Montcalm Research Center where high common scab disease pressure was observed in the previous four years. This location is being used for the early generation observational scab trial (356 lines) and the scab variety trial (139 lines).

We use a rating scale of 0-5 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. The 2011-2013 scab ratings are based upon the Montcalm Research Center site. **Table 7** categorizes many of the varieties and advanced selections tested in 2013 over a three-year period. The varieties and breeding lines are placed into six categories based upon scab infection level and lesion severity. A rating of 0 indicates zero scab infection. A score of 1.0

indicates a trace amount of infection. A moderate resistance (1.2 – 1.5) 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 Norkotah, GoldRush, Red Norland, Yukon Gold, Onaway, Pike, Atlantic, and Snowden can be used as references (bolded in **Table 7**). The table is sorted in ascending order by 2014 scab rating. This year's results continue to indicate that we have been able to breed numerous lines with resistance to scab. A total of 42 lines, of the 139 tested, had a scab rating of 1.5 or lower in 2014. Most notable scab resistant MSU lines are MSU358-3, McBride, MSL007-B, MSX540-4, MSQ440-2, MSQ279-1, MSR061-1, MSR127-2 and MSV301-2; as well as some earlier generation lines MSV383-B, MSV179-1, MSW474-01, MSU379-1 and, MST252-1Y. The greater number of MSU lines in the resistant and moderately resistant categories indicates we are making progress in breeding more scab resistant lines for the chip-processing and tablestock markets. There are also an increasing number of scab resistant lines that also have late blight resistance and PVY resistance such as MSR061-1 and MSX540-4. We also continue to conduct early generation scab screening on selections in the breeding program beginning after two years of selection. Of the 356 early generation selections that were evaluated, over 116 had scab resistance (scab rating of ≤ 1.0). Scab results from the disease nursery for the advanced selections are also found in the Trial Summaries (**Tables 1-6**).

H. Late Blight Trial (Tables 9 and 10)

In 2014, the late blight trial was planted at the Clarksville Research Center. Over 250 entries were planted in early June for late blight evaluation. These include lines tested in a replicated manner from the agronomic variety trial (105 lines) and 118 entries in the early generation observation plots. The trials were inoculated in early August with the US-23 genotype of *P. infestans*. Late blight infection was identified in the plots within 2 weeks after inoculation. The plots were evaluated 1-2 times per week over a 50-day period following inoculation. In 2014 the replicated variety trial 18 lines had strong late blight resistance, while 98 lines in the early generation observation plots had strong late blight resistance. These were from various late blight resistance sources in the pedigree of the selections (LBR9, Malinche, Kenya Baraka, Monserrat, Torridon, Stirling, NY121, Tollocan, B0718-3, Chaposa, *S. bulbocastanum*, *S. microdontum*, Muruta, Muriranrara, Enfula, Perkoz, Basadre, etc.). **Tables 9 and 10** list the foliar late blight disease ratings for select lines based on percent disease over time (RAUDPC; Relative Area Under the Disease Progress Curve). Please note that because of the lower level of infection, our cutoff for resistance was a very low RAUDPC score so we did not include false positives.

I. Blackspot Bruise Susceptibility (Table 11)

Evaluations of advanced seedlings and new varieties for their susceptibility to blackspot bruising are also important in the variety evaluation program. Based upon the

results collected over the past years, the non-bruised check sample has been removed from our bruise assessment. A composite bruise sample of each line in the trials consisted of 25 tubers (a composite of 4 replications) from each line, collected at the time of grading. The 25 tuber sample was held in 50°F (10°C) storage overnight and then was placed in a hexagon plywood drum and tumbled 10 times to provide a simulated bruise. The samples were peeled in an abrasive peeler in October and individual tubers were assessed for the number of blackspot bruises on each potato. These data are shown in **Table 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.

In 2014 the bruise levels were higher than previous years. The most bruise resistant MSU breeding lines this year from the trials were McBride, Manistee, MSM288-2Y, MSS576-05SPL, MSQ131-A, MSQ086-3, MSV344-2, MST202-5, V358-3, MSV111-1 and MSV307-2. The most susceptible lines from the trials were NY148, Elkton, NY152, NY154, Atlantic and Snowden.

Table 1

ADVANCED CHIP-PROCESSING TRIAL
MONTCALM RESEARCH FARM
May 06 to September 16, 2014 (133 days)
DD Base 40°F 3162⁹

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴					BRUISE ⁷	LB ⁸	LB	3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC	SCAB ⁵			RAUDPC x100	US#1 CWT/A
MSV093-1	484	507	95	4	75	20	1	1.081	1.0	1.0	0	5	0	0	1.4	1.0	LBS	33.7	-
MSR127-2	417	458	91	5	72	20	3	1.092	1.0	1.0	10	8	0	0	1.4	3.3	LBS	-	392
FL1879	376	393	96	4	81	14	0	1.089	1.0	1.0	40	43	0	0	2.5	3.2	LBS	-	330
NY148	363	404	90	9	80	9	1	1.099	1.0	1.0	3	8	0	0	1.5	4.8	LBMR	8.1	378
W5955-1	347	386	90	8	77	13	2	1.094	1.0	0.0	33	13	0	0	1.6	1.4	LBS	31.1	-
NY152	338	427	77	23	76	1	0	1.092	1.0	1.0	23	23	0	0	2.8	3.4	LBMS	28.1	-
Elkton	335	367	91	7	84	7	2	1.095	1.0	1.0	15	15	0	0	1.8	3.6	LBS	32.9	-
MSR061-1	324	358	90	10	82	8	0	1.092	1.0	1.0	13	20	0	0	1.0	2.2	LBMR	11.6	261
BNC182-5	322	347	93	7	72	21	0	1.090	1.0	2.0	13	20	0	0	1.6	1.8	LBMS	20.5	-
Sebec (AF0338-17)	321	350	92	8	88	4	0	1.091	1.0	1.0	0	30	0	0	2.1	2.2	LBS	38.2	-
MSM246-B	315	342	92	8	77	15	0	1.097	1.0	1.0	10	38	0	0	2.3	3.2	LBS	-	310*
Lamoka	284	312	91	9	82	9	0	1.096	1.0	1.0	0	23	0	0	1.5	1.8	LBS	34.1	319
Snowden	280	330	82	17	78	4	1	1.096	1.0	1.0	18	38	0	0	2.6	3.6	LBS	35.4	261
MSS428-2	279	319	87	13	74	12	0	1.090	1.0	1.0	53	18	0	0	2.5	2.8	LBR	1.0	-
McBride	269	299	90	10	80	10	1	1.089	1.0	1.0	0	25	0	0	1.1	1.5	LBS	-	259*
W6822-3	261	316	81	19	79	2	0	1.101	1.0	1.0	5	25	8	0	1.8	2.2	LBS	35.2	-
Atlantic	251	295	84	12	74	10	3	1.093	1.0	1.0	35	18	0	0	2.6	3.0	LBS	31.4	277
Manistee	239	279	85	15	81	4	1	1.092	1.0	1.0	3	10	0	0	1.9	2.0	LBS	-	270
MSL007-B	222	258	85	14	85	1	1	1.095	1.0	1.0	8	10	0	0	1.9	2.6	LBS	-	275
W6609-3	163	221	73	27	71	2	0	1.095	1.0	1.0	0	25	3	0	0.9	1.6	LBS	38.6	-
MEAN	309	349						1.093							1.8	2.6		27.1	307
HSD _{0.05}	183	168						0.007							1.5			15.0	

* Two-Year Average

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.³SED: Stem End Defect, Based on Paul Bethke's (USDA/UWisconsin - Madison) 0 - 5 scale. 0 = no SED; 3 = significant SED; 5 = severe SED⁴QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.⁵SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.⁶MATURITY RATING: Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).⁷BRUISE: Simulated blackspot bruise test average number of spots per tuber.⁸2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible

Plant Date: 5/6/14

Vine Kill: 9/8/14

Days from planting to vine kill: 125

⁹Enviroweather: Entrican Station. Planting to vine kill

Table 2

NORTH CENTRAL REGIONAL TRIAL
MONTCALM RESEARCH FARM
May 6 to September 11, 2014 (128 days)
DD Base 40°F 3032⁷

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²					MAT ⁴	LB ⁶	LB	3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC	SCAB ³			RAUDPC x100	US#1 CWT/A
ND7132-1R	498	526	94	5	79	16	1	1.072	10	10	0	10	NA	2.0			454*
MST500-1	461	485	95	3	49	46	2	1.078	45	5	0	0	2.7	4.0	LBMR	11.4	-
MN10003PLWR-06R	405	444	91	7	72	19	1	1.073	5	15	0	0	0.9	1.5			-
ND6002-1R	393	418	93	7	79	14	0	1.077	0	10	0	0	1.5	1.5			366*
Red Lasoda	376	394	94	5	62	32	1	1.071	5	60	0	0	2.9	1.0	LBS	38.5	-
MSS176-1	366	443	84	6	53	31	10	1.079	15	10	0	0	1.6	3.5	LBR	1.1	-
W9577-6Y	363	396	92	8	91	1	1	1.083	15	10	0	0	2.0	1.5			-
W6703-1Y	361	382	94	6	75	19	0	1.077	10	20	0	0	1.2	3.0	LBS	30.4	-
ND113207-1R	328	370	88	11	72	16	1	1.063	0	0	0	0	1.5	1.0			-
MSX540-4	315	355	89	10	88	1	1	1.105	0	20	0	0	0.9	3.5			-
MSQ131-A	297	299	99	1	40	60	0	1.076	0	0	0	0	1.9	2.5	LBR	1.1	-
MSS576-5SPL	291	312	93	6	77	16	0	1.085	0	5	0	0	1.6	1.5	LBR	2.7	366
W8405-1R	287	356	81	17	74	7	2	1.073	0	10	0	0	NA	2.5			342
ND092242C-1R	287	324	88	11	81	7	1	1.076	0	20	0	0	NA	1.0			-
MSM288-2Y	285	359	79	19	77	2	2	1.083	0	0	0	0	2.5	1.0	LBS		-
Yukon Gold	265	276	96	3	73	23	1	1.091	15	20	0	0	2.3	1.0	LBS	39.6	-
MSX007-4RR	238	372	64	19	58	6	17	1.065	0	0	0	0	2.1	2.0	LBS	38.9	-
Red Norland	223	249	90	10	86	3	0	1.068	5	0	0	0	1.4	2.0	LBS	40.3	252
ND102784B-3R	205	296	69	31	67	2	1	1.074	0	20	0	0	NA	1.0			-
MN10013PLWR-04	204	292	70	30	69	1	1	1.081	45	0	0	0	2.6	1.5	LBS	40.2	139*
MSR186-3P	190	237	80	12	74	6	8	1.071	0	15	0	0	1.5	1.5	LBMS	26.8	-
MN10003PLWR-02R	183	254	72	27	72	0	1	1.069	0	15	0	0	1.3	1.0	LBS	38.6	-
MN10025PLWR-07R	177	208	85	8	82	3	7	1.068	0	20	0	0	2.5	1.0			-
MN10003PLWR-07R	140	165	83	17	83	0	0	1.064	0	0	0	0	2.4	2.0	LBS	39.9	150*
MN10003PLWR-03R	131	192	68	24	67	1	9	1.058	0	0	0	0	3.0	1.0	LBS	40.5	166*
MN10020PLWR-04R	128	244	52	35	52	0	12	1.067	0	20	0	0	1.4	1.0	LBS	39.7	-
W8886-3R	114	144	79	16	68	11	5	1.068	0	0	0	0	1.0	1.0			-
MN10020PLWR-05R	57	95	61	37	61	0	2	1.055	0	10	0	0	1.6	1.0	LBS	39.9	-
MEAN	270	317						1.074					1.8	1.7		29.4	320
HSD _{0.05}	223	222						0.019					1.5			15.0	

* Two-Year Average

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: September 3, 2014; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).⁵BRUISE: Simulated blackspot bruise test average number of spots per tuber.⁶2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible⁷Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/6/14

Vine Kill: 9/3/14

Days from planting to vine kill: 120

Table 3

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

RUSSET TRIAL
MONTCALM RESEARCH FARM
May 6 to September 8, 2014 (125 days)
DD Base 40°F 3005⁷

LINE	CWT/A		PERCENT OF TOTAL ¹				SP GR	PERCENT (%) TUBER QUALITY ²					SCAB ³	BRUISE ⁵	LB ⁶	LB	3-YR AVG
	US#1	TOTAL	US#1	Bs	As	OV		PO	HH	VD	IBS	BC				RAUDPC	US#1
AF3362-1Rus	401	428	94	3	43	50	4	1.088	3	35	0	0	1.0	1.3	LBS	34.8	-
ATX91137-1Rus	400	454	87	6	50	37	7	1.079	0	0	0	0	1.1	0.2	LBS	35.1	-
AF4320-7	347	432	80	5	48	33	15	1.085	0	8	0	0	2.4	1.9	LBS	33.8	-
W9433-1Rus	331	371	89	4	39	51	6	1.085	0	13	0	0	1.3	1.5	LBS	32.4	-
A06021-T	310	363	85	11	66	19	4	1.084	3	5	0	0	1.5	1.2	LBS	32.7	-
Silverton Russet	288	328	87	8	51	35	6	1.077	33	10	0	0	1.6	1.3	LBS	33.2	363
W9433-1Rus (NCR)	279	298	94	6	56	38	1	1.079	0	20	0.0	0.0	1.3	ND			-
A03921-2	254	348	72	17	56	16	11	1.097	8	33	3	0	2.5	1.5	LBS	32.8	-
W8516-1Rus (NCR)	237	260	91	8	78	13	1	1.084	30	30	0.0	0.0	1.2	ND			-
ND7882b-7Rus (NCR) (1 rep)	213	312	68	24	62	6	8	1.080	0	30	0.0	0.0	NA	ND			-
MSU285-1Rus (2 reps)	203	267	74	14	68	6	11	1.076	35	10	0	0	2.0	0.6	LBS	32.3	-
W9759-1Rus (NCR)	200	246	81	17	77	5	2	1.077	5	20	0.0	0.0	0.4	ND			-
W8152-1Rus	198	264	75	21	67	8	5	1.091	33	5	0	0	1.6	0.7	LBS	30.3	242*
AF4124-7	197	255	77	14	68	9	10	1.085	5	58	0	0	1.8	0.8	LBS	39.2	-
W9133-1Rus	168	216	77	20	66	11	3	1.073	5	0	0	0	1.0	0.9	LBS	38.0	215*
W9133-1Rus (NCR)	158	193	82	17	69	13	1	1.073	10	5	0.0	0.0	NA	ND			-
Russet Norkotah (3 reps)	138	196	69	29	64	5	2	1.073	30	8	0	0	1.8	0.6	LBS	37.5	178
MEAN	254	308						1.082					1.5	1.0		34.3	271
HSD _{0.05}	177	177						0.005					1.5			15.0	

* Two-Year Average

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 19, 2013; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).⁵BRUISE: Simulated blackspot bruise test average number of spots per tuber.⁶2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible⁷Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/6/14

Vine Kill: 9/2/14

Days from planting to vine kill: 119

Table 4

ADAPTATION TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 6 to September 9, 2014 (126 days)
DD Base 40°F 3005⁷

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	BRUISE ⁵	LB ⁶	LB RAUDPC x100
	US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC				
MST500-1	491	540	91	3	32	58	6	1.075	40	3	3	0	2.7	1.0	LBMR	11.4
MSS176-1	462	540	85	4	55	30	11	1.085	15	5	3	0	1.6	1.4	LBR	1.1
MSQ086-3	433	465	93	6	79	14	1	1.087	3	5	0	0	1.9	1.0	LBS	33.1
MSS487-2	365	398	92	8	73	19	0	1.085	13	3	0	0	2.6	2.8	LBR	0.4
MSS576-5SPL	347	370	94	6	78	16	0	1.082	0	5	0	0	1.6	0.8	LBR	2.7
MSS206-2	338	344	98	1	53	45	1	1.083	3	3	0	0	2.5	1.5	LBR	0.0
Reba	335	347	96	2	69	28	1	1.084	10	18	0	0	2.3	2.1	LBS	40.4
Smiley	328	382	86	13	72	14	2	1.080	3	8	0	0	1.4	0.7	LBS	31.8
MSL211-3	313	351	89	9	75	15	2	1.081	0	8	5	0	1.6	1.2	LBMR	8.2
MSM288-2Y	301	363	83	15	81	2	2	1.080	0	5	0	0	2.5	0.3	LBS	
MSQ131-A	273	281	97	1	25	72	2	1.071	3	5	0	0	1.9	0.2	LBR	1.1
Alegria	271	387	70	11	63	7	19	1.083	0	18	0	0	1.8	0.7	LBS	35.9
Agila	267	340	79	18	69	9	3	1.069	0	10	3	0	2.1	0.3	LBS	37.7
Red Norland	229	278	81	19	81	0	0	1.064	0	3	0	0	1.4	0.2	LBS	40.3
MSR186-3P	196	258	76	10	70	5	14	1.071	0	8	3	0	1.5	0.4	LBMS	26.8
CO05228-4R	177	259	67	33	67	0	0	1.078	0	3	0	0	2.9	0.4	LBS	40.0
W6703-1Y	138	191	71	28	71	0	1	1.087	0	8	3	0	1.2	0.6	LBS	30.4
MEAN	310	358						1.079					2.0	0.9		21.3
HSD _{0.05}	116	110						0.009					1.5			15.0

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 19, 2013; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).⁵BRUISE: Simulated blackspot bruise test average number of spots per tuber.⁶2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible⁷Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/6/14

Vine Kill: 9/2/14

Days from planting to vine kill: 119

Table 5

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS

PRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 6 to September 15, 2014 (132 days)
DD Base 40°F 3162⁹

LINE	CWT/A		PERCENT OF TOTAL ¹				SP GR	CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴				SCAB ⁵	BRUISE ⁷	LB ⁸	LB RAUDPC x100	
	US#1	TOTAL	US#1	Bs	As	OV				HH	VD	IBS	BC					
Dakota Diamond	613	649	94	6	82	12	0	1.093	1.0	0.0	60	0	0	0	2.0	2.1	LBMS	26.0
MST191-2Y	539	595	91	9	82	9	0	1.092	1.0	0.0	0	0	0	0	2.9	1.7		
MSV033-1	531	557	95	5	63	32	0	1.090	1.0	0.0	55	45	0	0	2.0	3.4		
NY154 (H15-17)	477	524	91	9	88	3	0	1.097	2.0	0.0	15	10	0	0	1.6	4.3	LBMS	23.1
MST186-1Y	470	492	96	4	67	28	0	1.083	1.0	2.0	90	0	0	0	1.6	ND		
MSV498-1	459	493	93	7	80	13	0	1.089	1.0	3.0	95	15	0	0	1.6	2.8		
QSMSU08-04	411	455	90	3	64	26	6	1.085	1.0	2.0	5	5	0	0	1.6	1.2	LBS	37.9
MST178-2	389	424	91	8	68	23	0	1.074	1.0	0.0	30	5	0	0	2.0	1.5		
NYJ15-7	380	403	94	6	88	6	0	1.096	1.5	0.0	5	25	0	0	2.4	2.7	LBS	34.1
MSV507-012	353	386	92	8	78	14	0	1.099	1.5	0.0	25	10	0	0	1.8	3.7		
MST441-1	350	390	90	10	82	8	0	1.084	1.5	2.0	0	10	0	0	0.9	2.5		
MSV507-129	337	391	86	12	83	3	2	1.106	1.0	2.0	75	25	0	0	0.9	4.4		
MST094-1	336	360	93	6	79	14	1	1.084	1.0	1.0	5	55	0	0	1.6	ND		
Beacon Chipper	332	353	94	6	80	14	0	1.092	1.5	1.0	20	30	0	0	1.8	2.4	LBS	30.2
MSV507-001	330	345	96	4	74	22	0	1.092	1.0	1.0	5	15	0	0	1.9	3.0		
MSV434-1Y	327	371	87	11	73	14	1	1.075	1.0	0.0	5	0	0	0	1.5	0.7		
MSV396-4	313	380	82	18	82	1	0	1.091	1.5	0.0	0	20	0	0	1.8	2.4	LBMR	6.3
QSMSU01-10	310	356	87	13	77	10	0	1.098	1.0	0.0	35	5	5	0	2.2	1.8	LBS	39.1
MSV507-056	307	329	94	6	88	5	0	1.098	1.5	0.0	40	15	0	0	2.4	2.2		
Snowden	306	375	82	18	78	4	0	1.099	1.0	0.0	20	30	0	0	2.6	2.5	LBS	35.4
MST184-3	300	330	90	6	73	17	4	1.093	1.0	1.0	70	5	0	0	2.4	3.8		
Pike	300	343	86	14	81	6	0	1.097	1.0	0.0	0	15	0	0	1.3	3.6	LBS	34.3
QSMSU10-02	299	324	92	5	69	23	2	1.081	2.0	2.0	0	5	0	0	1.0	1.4	LBR	0.1
MSV030-4	293	340	86	13	79	7	1	1.099	1.0	1.0	5	5	0	0	1.9	2.7		
MSU358-2	290	312	93	3	74	19	4	1.096	1.5	0.0	5	0	0	10	0.8	3.1	LBS	38.6
MSV301-2	290	310	93	6	87	6	1	1.093	1.0	0.0	0	20	0	0	1.5	1.7		
MSV358-3	284	329	86	14	84	2	0	1.093	1.0	0.0	0	5	0	0	1.5	1.0		
MSV507-040	281	304	92	6	67	25	2	1.093	1.5	0.0	0	0	0	0	1.3	2.4		
QSMSU10-15	279	307	91	9	86	5	0	1.100	1.0	0.0	5	15	10	0	1.8	1.6	LBS	33.7
MST458-4	274	279	98	2	61	37	0	1.082	1.0	0.0	0	30	0	0	1.5	3.3	LBS	39.6
MSV507-198	268	307	87	13	80	6	0	1.089	1.0	0.0	35	10	0	0	1.3	1.4		
Atlantic	265	301	88	8	65	23	3	1.088	2.0	2.0	60	15	0	0	2.6	3.8	LBS	31.4
MSV440-6	263	292	90	10	86	4	0	1.076	1.5	3.0	0	5	0	0	2.4	1.2	LBMR	7.6
MSV507-073	260	298	87	13	85	2	0	1.101	1.0	0.0	0	10	0	0	1.6	2.9		
MSV505-2	256	293	87	13	86	1	0	1.092	1.0	0.0	0	15	0	0	0.9	2.8	LBS	39.7
MST096-2Y	248	269	92	8	81	11	0	1.085	1.0	0.0	0	0	0	0	1.7	0.6		
MSV507-052	239	288	82	18	80	3	0	1.088	1.0	0.0	0	20	0	0	1.0	2.6	LBS	38.3
MST424-6	237	268	88	5	71	17	7	1.084	1.0	0.0	0	5	0	0	1.5	3.7		

Table 5

PRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 6 to September 15, 2014 (132 days)
DD Base 40°F 3162⁹

LINE	CWT/A		PERCENT OF TOTAL ¹				SP GR	CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴				SCAB ⁵	BRUISE ⁷	LB ⁸	LB RAUDPC x100	
	US#1	TOTAL	US#1	Bs	As	OV				HH	VD	IBS	BC					
MSV307-2	234	330	71	28	70	1	1	1.085	1.0	0.0	0	10	0	0	1.5	1.2		
MSV394-3	233	298	78	21	76	2	1	1.091	1.0	3.0	15	5	10	0	1.6	1.6		
MST443-1Y	225	263	85	11	79	6	3	1.086	1.0	0.0	10	10	0	0	1.4	1.2	LBS	37.3
MSS167-6	222	283	79	16	72	7	6	1.087	1.5	0.0	35	5	5	0	1.7	2.1		
MSV344-2	215	240	88	4	70	18	8	1.077	1.5	3.0	10	20	5	0	1.5	0.5		
MSS108-1	213	261	81	17	74	8	2	1.084	1.0	0.0	15	15	20	0	1.4	1.8		
MSV507-140	207	240	86	14	86	0	0	1.095	1.0	0.0	0	0	0	0	1.0	1.5		
MSV380-1	203	224	91	9	91	0	0	1.091	1.5	0.0	0	20	0	0	0.9	2.8	LBS	31.8
MST202-5	198	244	81	17	81	0	2	1.083	1.0	1.0	0	20	0	0	1.0	0.5	LBS	36.4
MSV507-121	180	225	80	18	78	2	1	1.097	1.5	0.0	0	5	0	0	0.9	1.7		
MSV507-003	141	223	63	37	63	0	0	1.103	1.5	0.0	0	0	0	0	2.0	2.1		
MSV507-020	136	208	66	34	66	0	0	1.101	1.5	0.0	0	15	5	0	1.4	2.9	LBS	35.1
MEAN	304	343						1.091							1.6	2.3		30.3
HSD _{0.05}	239	234						0.010							1.5			15.0

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.³SED: Stem End Defect, Based on Paul Bethke's (USDA/UWisconsin - Madison) 0 - 5 scale. 0 = no SED; 3 = significant SED; 5 = severe SED⁴QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.⁵SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.⁶MATURITY RATING: August 19, 2013; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).⁷BRUISE: Simulated blackspot bruise test average number of spots per tuber.⁸2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible⁹Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/6/14

Vine Kill: 9/8/14

Days from planting to vine kill: 125

Table 6

PRELIMINARY TRIAL, TABLESTOCK LINES
 MONTCALM RESEARCH FARM
 May 6 to September 8, 2014 (125 days)
 DD Base 40°F 3005⁷

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	BRUISE ⁵	LB ⁶	LB
	US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC				RAUDPC
MST148-3	425	465	91	4	62	30	5	1.086	0	0	0	0	2.4	2.0	LBR	2.5
MST386-1P	378	420	90	4	54	36	5	1.085	0	0	5	0	1.0	1.2		
Granola	372	438	85	10	80	5	5	1.074	0	10	0	0	0.8	0.2	LBMS	19.2
MST145-2	368	426	86	12	73	13	2	1.085	5	0	0	0	2.8	1.2	LBR	0.4
MSU161-1	364	394	92	6	73	19	2	1.083	5	0	0	0	1.8	1.9	LBMR	7.3
Michigan Purple Sport I	360	388	93	4	66	27	3	1.074	0	0	0	0	1.5	0.9	LBS	
Reba	340	359	95	5	80	15	1	1.084	0	0	0	0	2.3	2.5	LBS	40.4
MSW239-3SPL	332	362	92	8	86	5	0	1.066	10	0	0	0	2.4	0.0		
Onaway	322	352	91	8	84	8	1	1.074	0	10	0	0	2.0	1.8	LBS	40.3
MSV111-1	313	353	89	11	81	8	0	1.084	0	0	0	0	1.6	0.1	LBMR	10.7
MSS164-1	291	350	83	15	78	5	2	1.093	25	0	0	0	1.3	0.8	LBR	0.0
Purple Haze	250	275	91	7	91	0	2	1.089	0	0	0	0	1.5	0.8	LBS	38.9
MST252-1Y	236	316	75	10	69	6	15	1.076	0	0	0	0	0.8	0.9	LBS	36.8
MSU202-1P	215	251	86	12	81	4	2	1.075	0	0	0	0	1.1	0.2	LBS	35.1
MSV235-2PY	141	262	54	45	54	0	1	1.082	5	0	0	0	2.8	0.9	LBR	2.7
MEAN	314	361						1.081					1.7	1.0		19.5
HSD _{0.05}	151	145						0.009					1.5			15.0

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: Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

⁵BRUISE: Simulated blackspot bruise test average number of spots per tuber.

⁶2014 Late Blight: LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible

⁷Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/6/14
 Vine Kill: 9/2/14
 Days from planting to vine kill: 119

Table 7

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2012-2014 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	3-YR* AVG.	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N	2012 RATING	2012 WORST	2012 N
<i>Sorted by ascending Average Rating;</i>										
W9759-1Rus	0.4	0.4	0.5	4	-	-	-	-	-	-
Granola	0.8	0.8	1.0	4	-	-	-	-	-	-
MST441-1	0.8*	0.9	1.5	4	-	-	-	0.6	1	4
MSU358-2	0.8	0.8	1.0	3	-	-	-	-	-	-
McBride	0.9	1.1	1.5	4	0.8	1.5	4	0.8	2	4
MN10003PLWR-06R	0.9	0.9	1.5	4	-	-	-	-	-	-
MSV380-1	0.9	0.9	1.5	4	-	-	-	-	-	-
MSV505-2	0.9	0.9	1.0	4	-	-	-	-	-	-
MSV507-010	0.9	0.9	1.0	4	-	-	-	-	-	-
MSV507-121	0.9	0.9	1.0	4	-	-	-	-	-	-
MSV507-129	0.9	0.9	1.0	4	-	-	-	-	-	-
MSX540-4	0.9	0.9	1.0	4	-	-	-	-	-	-
W6609-3	0.9	0.9	1.0	4	-	-	-	-	-	-
A06021-T	1.0	1.0	1.5	4	-	-	-	-	-	-
MST202-5	1.0	1.0	1.0	4	-	-	-	-	-	-
MST386-1P	1.0	1.0	1.5	4	-	-	-	-	-	-
MSV507-052	1.0	1.0	1.5	3	-	-	-	-	-	-
MSV507-140	1.0	1.0	1.0	4	-	-	-	-	-	-
QSMSU10-02 ^{LBR}	1.0	1.0	1.0	4	-	-	-	-	-	-
W8886-3R	1.0	1.0	1.0	2	-	-	-	-	-	-
AF3362-1Rus	1.1*	1.0	1.0	4	-	-	-	1.3	2	4
MST252-1Y	1.1*	0.8	1.0	4	1.5	2	4	-	-	-
W6703-1Y	1.1	1.2	2.0	7	1.0	1.5	4	1.1	2	4
ATX91137-1Rus	1.1	1.1	2.0	4	-	-	-	-	-	-
MSU202-1P	1.1	1.1	1.5	4	-	-	-	-	-	-
Silverton Russet	1.2	1.6	2.0	4	1.1	2	4	0.8	2	4
W8516-1Rus	1.2	1.2	2.0	3	-	-	-	-	-	-
MSS164-1 ^{LBR}	1.3	1.3	1.5	4	-	-	-	-	-	-
MSV507-040	1.3	1.3	1.5	4	-	-	-	-	-	-
MSV507-198	1.3	1.3	2.0	4	-	-	-	-	-	-
Pike	1.3	1.3	1.5	4	1.4	2	4	1.1	2	8
W9433-1Rus	1.3	1.3	2.0	4	-	-	-	-	-	-
MSR127-2	1.3	1.4	2.0	4	1.0	1.5	4	1.5	2	4
MST096-2Y	1.3*	1.7	2.0	3	-	-	-	0.9	2	4
MSV093-1 ^{LBR}	1.3*	1.4	2.0	4	1.3	2	4	-	-	-
MN10003PLWR-02R	1.3	1.3	2.0	4	-	-	-	-	-	-
MN10020PLWR-04R	1.4	1.4	2.5	4	-	-	-	-	-	-
MST443-1	1.4	1.4	2.0	4	-	-	-	-	-	-
MSV507-020	1.4	1.4	2.0	4	-	-	-	-	-	-
Smiley	1.4	1.4	2.0	4	-	-	-	-	-	-
MST424-6	1.4*	1.5	1.5	4	1.3	1.5	4	-	-	-
QSMSU10-15	1.4*	1.8	2.5	4	1.1	2	4	-	-	-
Lamoka	1.5	1.5	2.0	4	1.5	2	4	1.5	2	4
MSV301-2	1.5	1.5	2.0	4	-	-	-	-	-	-
MSV307-02	1.5	1.5	2.0	4	-	-	-	-	-	-
MSV344-2	1.5	1.5	2.5	4	-	-	-	-	-	-
MSV358-3	1.5	1.5	2.5	3	-	-	-	-	-	-
MSV434-1Y	1.5	1.5	2.0	4	-	-	-	-	-	-
ND113207-1R	1.5	1.5	2.0	2	-	-	-	-	-	-
W9133-1Rus	1.5*	1.0	2.0	4	2.0	2.5	4	-	-	-
MST178-2	1.5	2.0	3.0	4	1.5	2	4	1.1	2	4
MSV498-1	1.6	1.6	2.0	4	-	-	-	-	-	-
MSV507-073	1.6	1.6	2.5	5	-	-	-	-	-	-
W5955-1	1.6*	1.6	2.0	4	1.5	2	4	-	-	-
BNC182-5	1.6	1.6	2.0	4	-	-	-	-	-	-
MN10020PLWR-05R	1.6	1.6	2.0	4	-	-	-	-	-	-
MSL007-B	1.6	1.9	2.5	4	1.5	2	4	1.5	2	4

Table 7

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2012-2014 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N	2012 RATING	2012 WORST	2012 N
<i>Sorted by ascending Average Rating;</i>										
MSR061-1 ^{LBM,R,PVYR}	1.6	1.0	1.5	4	2.0	2	4	1.9	2	4
MST094-1	1.6	1.6	2.0	4	-	-	-	-	-	-
MST186-1Y	1.6	1.6	2.0	4	-	-	-	-	-	-
MSV394-3	1.6	1.6	2.0	4	-	-	-	-	-	-
NY154 ^{LBM,S}	1.6	1.6	2.0	4	-	-	-	-	-	-
Red Norland	1.6	1.4	2.0	9	2.0	2.5	4	1.5	3	4
MSS167-6 ^{LBR}	1.7	1.7	2.0	4	-	-	-	-	-	-
Purple Haze	1.7	1.5	2.0	4	-	-	-	1.9	2	4
Elkton	1.7*	1.8	2.0	5	1.6	2	4	-	-	-
MSS108-1 ^{LBM,S}	1.7*	1.4	1.5	4	2.0	2.5	4	-	-	-
MSS176-1 ^{LBR}	1.7*	1.6	2.0	7	1.8	2	4	-	-	-
MST458-4	1.7*	1.5	1.5	3	1.9	2	4	-	-	-
AF4124-7	1.8	1.8	2.0	4	-	-	-	-	-	-
Alegria	1.8	1.8	2.0	4	-	-	-	-	-	-
Beacon Chipper	1.8	1.8	2.0	4	-	-	-	-	-	-
MST154-3	1.8	1.8	2.0	4	-	-	-	-	-	-
MSU161-1 ^{LBM,R}	1.8	1.8	2.0	4	-	-	-	-	-	-
MSV396-4Y ^{LBM,R}	1.8	1.8	2.5	4	-	-	-	-	-	-
MSV507-012	1.8	1.8	2.0	4	-	-	-	-	-	-
W6822-3	1.8	1.8	2.0	4	-	-	-	-	-	-
NY148 ^{LMB,R}	1.8	1.5	2.0	4	2.1	2.5	4	1.8	2	4
MSR186-3P ^{LBM,S}	1.8*	1.5	2.0	8	2.0	2.5	4	-	-	-
MSV111-2 ^{LBM,R}	1.8*	1.6	2.0	4	1.9	2	4	-	-	-
ND6002-1R	1.8*	1.5	2.0	2	2.1	2.5	4	-	-	-
QSMSU08-04	1.8*	1.6	2.0	4	2.0	2.5	4	-	-	-
MSQ131-A ^{LBR}	1.9	1.9	2.5	7	1.8	2.5	3	1.9	3	4
A03921-2	1.9	1.9	2.5	4	-	-	-	-	-	-
MSH228-6	1.9	1.9	2.5	4	-	-	-	-	-	-
MSV030-4	1.9	1.9	2.0	4	-	-	-	-	-	-
MSV507-001	1.9	1.9	2.0	4	-	-	-	-	-	-
MSS576-05SPL ^{LBR}	1.9	1.6	2.0	8	2.2	2.5	8	1.9	2	4
MSQ130-4 ^{LBR}	1.9*	1.9	2.0	4	2.0	2	4	-	-	-
W8152-1Rus	1.9*	1.6	2.0	4	2.1	2.5	4	-	-	-
MSL211-3 ^{LBR}	1.9	1.6	2.0	4	2.3	2.5	4	1.9	2	4
Dakota Diamond	2.0	2.0	2.5	4	-	-	-	-	-	-
MST184-3	2.0	2.4	2.5	4	2.0	2.5	4	1.6	2	4
MSU285-1Rus	2.0	2.0	2.5	4	-	-	-	-	-	-
MSV033-1	2.0	2.0	2.5	4	-	-	-	-	-	-
MSV507-003	2.0	2.0	2.0	4	-	-	-	-	-	-
W9577-6Y	2.0	2.0	2.0	3	-	-	-	-	-	-
MSQ086-3	2.0	1.9	2.0	4	2.4	3	4	1.9	2	4
Onaway	2.0	2.0	2.5	4	2.3	2.5	4	1.9	2	8
Russet Norkotah	2.1	1.8	2.5	7	2.5	3	4	1.9	3	4
Sebec	2.1	2.1	3.0	5	-	-	-	-	-	-
Michigan Purple Sport I	2.1*	1.5	2.0	4	2.6	3	4	-	-	-
Agila	2.1	2.1	2.5	4	-	-	-	-	-	-
MSS206-2 ^{LBR}	2.1	2.5	3.0	4	2.3	3	4	1.6	2	4
MSX007-4RR	2.1	2.1	2.5	4	-	-	-	-	-	-
Jingshu	2.3	2.3	2.5	4	-	-	-	-	-	-
Reba	2.4	2.3	2.5	6	2.6	3	4	2.2	3	8
AF4320-7	2.4	2.4	2.5	4	-	-	-	-	-	-
MN10003PLWR-07R	2.4	2.4	2.5	4	-	-	-	-	-	-
MSV440-6 ^{LBM,R}	2.4	2.4	2.5	4	-	-	-	-	-	-
MSW239-3SPL	2.4	2.4	3.0	4	2.3	3	4	2.5	3	4
NYJ15-7	2.4	2.4	2.5	4	-	-	-	-	-	-
MSV507-056	2.4	2.4	3.0	5	-	-	-	-	-	-

Table 7

2012-2014 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N	2012 RATING	2012 WORST	2012 N
<i>Sorted by ascending Average Rating;</i>										
FL1879	2.4*	2.5	3.0	4	-	-	-	2.3	3	4
MST359-3 ^{LBR}	2.4*	2.1	2.5	4	2.6	3.5	4	-	-	-
QSMSU01-10	2.4*	2.2	2.5	3	2.6	3	4	-	-	-
MST065-1 ^{LBMS}	2.5	2.4	2.5	4	2.4	3	4	2.6	3	4
MN10025PLWR-07R	2.5	2.5	3.0	4	-	-	-	-	-	-
MSS428-2 ^{LBR}	2.5	2.5	3.0	4	-	-	-	-	-	-
MST148-3	2.5*	2.4	3.0	4	2.6	4	4	-	-	-
Manistee	2.5	1.9	2.0	4	3.3	3.5	4	2.5	3	4
MSM180-3	2.6*	2.3	2.5	4	3.0	3	4	-	-	-
MSS487-2 ^{LBR}	2.7	2.6	3.0	4	3.3	3.5	4	2.1	3	4
MST145-2 ^{LBR}	2.8	2.8	3.0	4	-	-	-	-	-	-
NY152 ^{LBMS}	2.8	2.8	3.5	5	-	-	-	-	-	-
Yukon Gold	2.8	2.3	3.5	8	3.0	3.5	4	3.0	3	4
Snowden	2.8	2.6	3.0	8	3.1	3.5	12	2.6	3	8
MSM288-2Y	2.8	2.5	2.5	3	3.1	3.5	4	2.8	3	4
MSS483-1 ^{LBMR}	2.8	2.9	3.5	4	3.0	4	4	2.5	3	4
MSM246-B	2.8*	2.3	3.0	4	3.3	3.5	4	-	-	-
Atlantic	2.9	2.6	3.0	8	3.2	3.5	12	2.8	4	12
CO05228-4R	2.9	2.9	3.5	4	-	-	-	-	-	-
MST191-2Y	2.9	2.9	3.0	4	-	-	-	-	-	-
Red Lasoda	2.9	2.9	3.5	4	-	-	-	-	-	-
MST500-1 ^{LBMR}	2.9*	2.7	3.0	7	3.1	3.5	4	-	-	-
MSV235-2PY ^{LBR}	2.9*	2.8	3.0	4	3.1	3.5	4	-	-	-
MSK136-2	3.0	3.0	3.5	4	-	-	-	-	-	-
MN10013PLWR-04	3.0*	2.6	3.5	4	3.4	4	4	-	-	-
MN10003PLWR-03R	3.1*	3.0	3.5	4	3.3	3.5	4	-	-	-
HSD_{0.05} =		1.5			1.5			1.4		

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.

N = Number of replications.

*2-Year Average.

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSM270-BY	0.5	1	84SD22	W5337.3
MSV383-B	0.5	1	Pike	MSN238-A
MSV407-2	0.5	1	MSQ070-1	MSP239-1
MSW474-01	0.5	1	MSN190-2	MSP516-A
MSX324-1P	0.5	1	MSN105-1	MSN215-2P
MSY044-1	0.5	1	MSK061-4	MST096-2Y
MSY046-3	0.5	1	Manistee	MSS026-2Y
MSY256-A2	0.5	1	Kalkaska	Manistee
MSY517-8YSPL	0.5	1	Spartan Splash	Bison
MSY543-2	0.5	1	Dakota Diamond	MSL211-3
MSY573-3Rus	0.5	1	Canela	Goldrush Russet
MSY713-1	0.5	1	MSS703-5	MCR150
MSY741-1	0.5	1	MSA133-16Y	MSP055-1Y
MSZ063-02	0.5	1	MSR148-4	McBride
MSZ109-05RR	0.5	1	COMN07-W112BG1	MSU200-5PP
MSZ147-05	0.5	1	M5	MSS297-3
MSZ267-4	0.5	1	MSU278-1Y	Kalkaska
MSZ268-1	0.5	1	MSU278-1Y	Pike
MSZ412-2RR	0.5	1	Colonial Purple	MST406-2RR
MSZ413-3PP	0.5	1	Colonial Purple	MSU200-5PP
MSZ413-7PP	0.5	1	Colonial Purple	MSU200-5PP
MSZ414-1	0.5	1	MSN230-1RY	Colonial Purple
MSZ427-1R	0.5	1	MSQ440-2	NDTX4271-5R
MSZ464-3	0.5	1	MSQ070-1	Alca Tarma
MSZ709-09	0.5	1	MSM269-HORG	84SD22
Red Norland	1.0	1		
MSU379-01	1.0	1	MSP238-1	Missaukee
MSY027-2	1.0	1	MST096-2Y	Pike
MSY042-1	1.0	1	MSJ147-1	W2133-1
MSY089-2	1.0	1	MSS176-1	B2731-2
MSY156-2	1.0	1	MSK061-4	Kalkaska
MSY169-4	1.0	1	Boulder	MSR102-3
MSY468-16	1.0	1	NYL235-4	MSL211-3
MSY489-1	1.0	1	MSL211-3	MSQ279-1
MSY507-2	1.0	1	Superior	MSL211-3
MSZ010-9	1.0	1	Atlantic	MSV229-2
MSZ034-4	1.0	1	M5	MSU383-1
MSZ063-13Y	1.0	1	MSR148-4	McBride
MSZ069-11	1.0	1	Snowden	MSS297-3
MSZ069-13	1.0	1	Snowden	MSS297-3
MSZ073-2Y	1.0	1	MSU278-1Y	MSR169-8Y
MSZ074-2	1.0	1	W2978-3	W2310-3
MSZ075-3	1.0	1	W6609-3	McBride
MSZ075-4Y	1.0	1	W6609-3	McBride
MSZ088-03	1.0	1	Atlantic	MSV310-2
MSZ092-2	1.0	1	Elkton	MSQ086-3
MSZ100-1	1.0	1	Boulder	MSV477-5
MSZ103-4	1.0	1	CO95051-7W	McBride
MSZ107-1PP	1.0	1	COMN07-W112BG1	MSR127-2
MSZ107-2PP	1.0	1	COMN07-W112BG1	MSR127-2
MSZ109-03PP	1.0	1	COMN07-W112BG1	MSU200-5PP
MSZ109-07PP	1.0	1	COMN07-W112BG1	MSU200-5PP
MSZ109-08PP	1.0	1	COMN07-W112BG1	MSU200-5PP
MSZ109-10PP	1.0	1	COMN07-W112BG1	MSU200-5PP

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSZ124-5	1.0	1	Manistee	MSS297-3
MSZ144-03Y	1.0	1	M5	McBride
MSZ144-04Y	1.0	1	M5	McBride
MSZ144-07	1.0	1	M5	McBride
MSZ144-10Y	1.0	1	M5	McBride
MSZ146-9	1.0	1	M5	Manistee
MSZ147-03	1.0	1	M5	MSS297-3
MSZ172-3	1.0	1	MSP270-1	W6609-3
MSZ199-1	1.0	1	MSQ070-1	Kalkaska
MSZ200-3	1.0	1	MSQ070-1	Lamoka
MSZ204-1P	1.0	1	MSQ070-1	MSU200-5PP
MSZ205-1	1.0	1	MSQ070-1	MSU383-1
MSZ213-2P	1.0	1	MSQ279-1	Colonial Purple
MSZ216-4	1.0	1	MSR058-1	MSS297-3
MSZ218-5	1.0	1	MSR061-1	MSQ086-3
MSZ220-01	1.0	1	MSR061-1	MSS297-3
MSZ223-2	1.0	1	MSR148-4	MSS297-3
MSZ223-5	1.0	1	MSR148-4	MSS297-3
MSZ245-07	1.0	1	Snowden	Elkton
MSZ246-1	1.0	1	Snowden	Dakota Diamond
MSZ248-01	1.0	1	Snowden	MSV229-2
MSZ248-02	1.0	1	Snowden	MSV229-2
MSZ248-10	1.0	1	Snowden	MSV229-2
MSZ250-1	1.0	1	MSS070-B	McBride
MSZ269-08Y	1.0	1	MSU278-1Y	MSR127-2
MSZ269-12	1.0	1	MSU278-1Y	MSR127-2
MSZ269-17	1.0	1	MSU278-1Y	MSR127-2
MSZ269-18	1.0	1	MSU278-1Y	MSR127-2
MSZ270-1	1.0	1	MSU278-1Y	MSR157-1Y
MSZ274-1	1.0	1	MSU383-1	Kalkaska
MSZ279-1Y	1.0	1	MSV229-2	McBride
MSZ282-6	1.0	1	MSV502-3	Kalkaska
MSZ291-6Y	1.0	1	W2978-3	MSN191-2Y
MSZ296-1	1.0	1	W6609-3	MSR127-2
MSZ302-1	1.0	1	Snowden	Lamoka
MSZ407-2	1.0	1	Montanosa	Colonial Purple
MSZ407-7	1.0	1	Montanosa	Colonial Purple
MSZ413-6P	1.0	1	Colonial Purple	MSU200-5PP
MSZ416-8RY	1.0	1	MSN230-1RY	NDTX4271-5R
MSZ427-10R	1.0	1	MSQ440-2	NDTX4271-5R
MSZ428-1PP	1.0	1	MSQ461-2PP	MSS544-1R
MSZ435-03R	1.0	1	MSS576-05SPL	NDTX4271-5R
MSZ436-1	1.0	1	MSS576-05SPL	MSQ440-2
MSZ437-7RR	1.0	1	MSS576-05SPL	MST406-2RR
MSZ437-9RR	1.0	1	MSS576-05SPL	MST406-2RR
MSZ452-1	1.0	1	Atlantic	Chaposa
MSZ453-1	1.0	1	McBride	Alca Tarma
MSZ462-1R	1.0	1	OG-08-168	MSL211-3
MSZ539-3	1.0	1	MSL211-3	MSL268-D
MSZ551-1	1.0	1	MSM182-1	MSL268-D
MSZ599-1	1.0	1	MST386-1P	NDTX4271-5R
MSZ599-2	1.0	1	MST386-1P	NDTX4271-5R
MSZ609-1P	1.0	1	386056.2	Colonial Purple
MSZ612-3	1.0	1	Basadre	MSQ086-3

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSZ618-1	1.0	1	Muziranzara	MSQ440-3
MSZ622-1	1.0	1	Satina	MSL211-3
MSZ702-01	1.0	1	CIP575045	84SD22
MSZ709-03Y	1.0	1	MSM269-HORG	84SD22
MSZ714-1	1.0	1	RH	RH
MSZ744-1	1.0	1	MSM185-1	MSP091-1
MSZ801-035	1.0	1	Atlantic	Atlantic
MSZUNK-6	1.0	1		
MSR159-02	1.5	1	MSL766-1	McBride
MST033-02	1.5	1	Atlantic	MSL211-3
MSV114-2	1.5	1	MSJ316-A	MSQ070-1
MSX035-WP	1.5	1	Beacon Chipper	ARS10091WP
MSY001-4	1.5	1	Boulder	Manistee
MSY008-3	1.5	1	MSP515-2	Manistee
MSY041-1	1.5	1	Dakota Diamond	MSP368-1
MSY209-1	1.5	1	Pike	MSN170-A
MSY483-03	1.5	1	MSL505-3	MSN105-1
MSY491-2Y	1.5	1	MSL183-AY	MSL211-3
MSY520-1	1.5	1	MSQ440-2	MSN105-1
MSY544-5R	1.5	1	Bison	MSS544-1R
MSY557-2Y	1.5	1	Torridon	Silverton Russet
MSY712-2	1.5	1	MSS703-5	84SD22
MSY719-1	1.5	1	MSL316-EY	MSA160-3
MSY728-1	1.5	1	523-3-S7	84SD22
MSZ004-1	1.5	1	Atlantic	MSL211-3
MSZ005-1	1.5	1	Atlantic	Manistee
MSZ006-08	1.5	1	Atlantic	M5
MSZ025-2	1.5	1	Lamoka	M5
MSZ037-1Y	1.5	1	NDU030-1 (NY121)	McBride
MSZ037-5	1.5	1	NDU030-1 (NY121)	McBride
MSZ044-5Y	1.5	1	NYF57-3	McBride
MSZ047-1	1.5	1	MSN148-A	McBride
MSZ051-5	1.5	1	Pike	Chaposa
MSZ063-04	1.5	1	MSR148-4	McBride
MSZ100-4	1.5	1	Boulder	MSV477-5
MSZ105-1	1.5	1	CO95051-7W	Lenape
MSZ105-3	1.5	1	CO95051-7W	Lenape
MSZ107-6PP	1.5	1	COMN07-W112BG1	MSR127-2
MSZ111-1	1.5	1	McBride	Dakota Diamond
MSZ119-1	1.5	1	Kalkaska	M5
MSZ147-04	1.5	1	M5	MSS297-3
MSZ147-09	1.5	1	M5	MSS297-3
MSZ149-6	1.5	1	MSN148-A	MSQ086-3
MSZ159-3	1.5	1	NDU030-1 (NY121)	MSV477-5
MSZ186-2	1.5	1	Pike	M5
MSZ189-3	1.5	1	Pike	MSS297-3
MSZ212-3	1.5	1	MSQ279-1	Kalkaska
MSZ235-4	1.5	1	MSR157-1Y	MSV477-5
MSZ235-7	1.5	1	MSR157-1Y	MSV477-5
MSZ251-1	1.5	1	MSS070-B	Lamoka
MSZ252-1	1.5	1	MSS165-2Y	W6609-3
MSZ263-4	1.5	1	MSU088-1	McBride
MSZ280-7	1.5	1	MSV310-2	M5
MSZ405-1PP	1.5	1	MSM182-1	MSU200-5PP

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSZ427-3R	1.5	1	MSQ440-2	NDTX4271-5R
MSZ443-1PP	1.5	1	MSU200-5PP	NDTX4271-5R
MSZ453-4	1.5	1	McBride	Alca Tarma
MSZ454-1	1.5	1	Atlantic	Enfula
MSZ456-2	1.5	1	McBride	Chaposa
MSZ459-5Y	1.5	1	Lamoka	Alca Tarma
MSZ513-2	1.5	1	MSL268-D	MSL211-3
MSZ519-3	1.5	1	MSQ440-2	MSU320-2Y
MSZ533-7	1.5	1	A00ETB12-2	MSL211-3
MSZ537-4	1.5	1	MSL211-3	Chaposa
MSZ553-1	1.5	1	MSM182-1	MSQ176-5
MSZ562-4	1.5	1	Muruta	MSL211-3
MSZ578-1Y	1.5	1	Nicola	Santa Ana
MSZ590-1	1.5	1	Superior	Picasso
MSZ602-2PP	1.5	1	MSU200-5PP	MST406-2RR
MSZ602-7PP	1.5	1	MSU200-5PP	MST406-2RR
MSZ610-1	1.5	1	Chaposa	MSQ176-5
MSZ615-2	1.5	1	Sieglinde	MSL211-3
MSZ616-1	1.5	1	Nicola	MSL211-3
MSZ620-1	1.5	1	Muziranzara	MSL211-3
MSZ709-01Y	1.5	1	MSM269-HORG	84SD22
MSZ739-3	1.5	1	MSL505-3	CO00188-4W
MSZ801-051	1.5	1	Atlantic	Atlantic
MST075-01R	2.0	1	Dakota Jewel	MSL211-3
MSU088-1	2.0	1	MSK061-4	Missaukee
MSW122-12	2.0	1	MSM185-1	MSP085-2
MSW122-3	2.0	1	MSM185-1	MSP085-2
MSX125-5Y	2.0	1		
MSX137-6	2.0	1	Eva	MSL211-3
MSY012-2	2.0	1	MSQ070-1	ND8304-2
MSY071-1	2.0	1	MST220-08	MSR102-3
MSY076-13	2.0	1	MST443-1	B2731-2
MSY111-1	2.0	1	MSQ086-3	McBride
MSY192-2PP	2.0	1	MSQ405-1PP	MSQ461-2PP
MSY193-1	2.0	1	MSQ279-1	B2731-2
MSY452-1	2.0	1	MSQ176-5	MSL211-3
MSY474-08	2.0	1	MSM182-1	Haig Ind 98
MSY480-3RY	2.0	1	MN96013-1RY	MSS544-1R
MSY515-1	2.0	1	Reba	Haig Ind 98
MSZ001-1	2.0	1	1989-86061	Manistee
MSZ003-4	2.0	1	Atlantic	McBride
MSZ007-09	2.0	1	Atlantic	MSQ086-3
MSZ007-10	2.0	1	Atlantic	MSQ086-3
MSZ013-3	2.0	1	CO00188-4W	Atlantic
MSZ017-1	2.0	1	McBride	Lenape
MSZ022-1	2.0	1	Kalkaska	W2310-3
MSZ030-4	2.0	1	M5	MSQ089-1
MSZ034-1	2.0	1	M5	MSU383-1
MSZ037-2Y	2.0	1	NDU030-1 (NY121)	McBride
MSZ037-6	2.0	1	NDU030-1 (NY121)	McBride
MSZ040-1	2.0	1	NDU045-1	MSR036-5
MSZ049-2	2.0	1	MSN251-1Y	Lamoka
MSZ051-1	2.0	1	Pike	Chaposa
MSZ054-2	2.0	1	MSQ070-1	Lenape

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSZ057-3	2.0	1	MSQ070-1	ND8334Cb-3
MSZ063-07Y	2.0	1	MSR148-4	McBride
MSZ076-2Y	2.0	1	W6822-3	McBride
MSZ091-3	2.0	1	Elkton	MSL211-3
MSZ091-4	2.0	1	Elkton	MSL211-3
MSZ097-1	2.0	1	Boulder	Lamoka
MSZ107-4	2.0	1	COMN07-W112BG1	MSR127-2
MSZ124-7	2.0	1	Manistee	MSS297-3
MSZ128-1	2.0	1	Lenape	CO00188-4W
MSZ129-1	2.0	1	Lenape	Kalkaska
MSZ146-1	2.0	1	M5	Manistee
MSZ147-10	2.0	1	M5	MSS297-3
MSZ152-1	2.0	1	ND8307c-3	MSR036-5
MSZ154-1	2.0	1	NDU022-1	MSQ086-3
MSZ157-3	2.0	1	NDU030-1 (NY121)	Missaukee
MSZ210-08	2.0	1	MSQ131-A	MSL211-3
MSZ215-2	2.0	1	MSR058-1	MSQ086-3
MSZ215-7	2.0	1	MSR058-1	MSQ086-3
MSZ245-08	2.0	1	Snowden	Elkton
MSZ253-1Y	2.0	1	Snowden	McBride
MSZ256-1	2.0	1	Snowden	W6609-3
MSZ264-1	2.0	1	MSU128-2	ARS10241-2W
MSZ269-13	2.0	1	MSU278-1Y	MSR127-2
MSZ269-19	2.0	1	MSU278-1Y	MSR127-2
MSZ269-22	2.0	1	MSU278-1Y	MSR127-2
MSZ280-2	2.0	1	MSV310-2	M5
MSZ290-1	2.0	1	W2978-3	Kalkaska
MSZ413-4PP	2.0	1	Colonial Purple	MSU200-5PP
MSZ428-2R	2.0	1	MSQ461-2PP	MSS544-1R
MSZ431-1RY	2.0	1	MSR241-4RY	NDTX4271-5R
MSZ431-5RY	2.0	1	MSR241-4RY	NDTX4271-5R
MSZ433-3P	2.0	1	MSS483-1	MSU200-5PP
MSZ435-09	2.0	1	MSS576-05SPL	NDTX4271-5R
MSZ436-2SPL	2.0	1	MSS576-05SPL	MSQ440-2
MSZ502-1Y	2.0	1	MSI005-20Y	MSQ440-2
MSZ515-1Y	2.0	1	MSM288-2Y	MSU320-2Y
MSZ516-6	2.0	1	Montanosa	MSL211-3
MSZ522-5	2.0	1	MSS070-B	MSS297-3
MSZ533-5	2.0	1	A00ETB12-2	MSL211-3
MSZ537-3	2.0	1	MSL211-3	Chaposa
MSZ547-3	2.0	1	MSL505-3	MSL211-3
MSZ552-2P	2.0	1	MSM182-1	Colonial Purple
MSZ558-1Y	2.0	1	MSM183-1	MSQ086-3
MSZ570-1	2.0	1	ND8331cb-3	MSL211-3
MSZ571-3R	2.0	1	NDTX4271-5R	Colonial Purple
MSZ596-2	2.0	1	MSS483-1	MSQ440-2
MSZ598-2	2.0	1	MSS576-05SPL	Superior
MSZ599-3	2.0	1	MST386-1P	NDTX4271-5R
MSZ602-4PP	2.0	1	MSU200-5PP	MST406-2RR
MSZ610-7	2.0	1	Chaposa	MSQ176-5
MSZ611-2	2.0	1	Perkoz	MSL211-3
MSZ620-3	2.0	1	Muziranzara	MSL211-3
MSZ702-03	2.0	1	CIP575045	84SD22
MSZ702-04	2.0	1	CIP575045	84SD22

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014 RATING	2014 N	FEMALE	MALE
<i>Sorted by ascending 2014 Rating:</i>				
MSZ708-6	2.0	1	MSL316-EY	84SD22
MSZ709-04	2.0	1	MSM269-HORG	84SD22
MSZ740-1	2.0	1	MSL505-3	McBride
MSZ801-099	2.0	1	Atlantic	Atlantic
MSZ801-200	2.0	1	Atlantic	Atlantic
MSQ176-5	2.5	1	MSI152-A	Missaukee
MSV284-1	2.5	1	Montserrat	MSP239-1
MSV440-6	2.5	1	MSQ335-2	McBride
MSW068-04	2.5	1	MSK061-4	MSM246-B
MSW092-01	2.5	1	MSL106-AY	Montserrat
MSW286-02	2.5	1	MSP102-5	MSP084-3
MSY256-A1	2.5	1	Kalkaska	Manistee
MSY494-6	2.5	1	Dakota Diamond	MSL211-3
MSY569-1RusY	2.5	1	Torridon	CO99053-3RUS
MSY733-1	2.5	1	MSL316-EY	84SD22
MSZ006-02	2.5	1	Atlantic	M5
MSZ025-5	2.5	1	Lamoka	M5
MSZ030-2	2.5	1	M5	MSQ089-1
MSZ030-3	2.5	1	M5	MSQ089-1
MSZ038-1	2.5	1	NDU030-1 (NY121)	M5
MSZ042-5	2.5	1	ND8331Cb-3	MSQ086-3
MSZ055-3	2.5	1	MSQ070-1	M5
MSZ057-5	2.5	1	MSQ070-1	ND8334Cb-3
MSZ073-1	2.5	1	MSU278-1Y	MSR169-8Y
MSZ074-3	2.5	1	W2978-3	Tundra
MSZ088-04	2.5	1	Atlantic	MSV310-2
MSZ088-05	2.5	1	Atlantic	MSV310-2
MSZ091-6	2.5	1	Elkton	MSL211-3
MSZ109-11PP	2.5	1	COMN07-W112BG1	MSU200-5PP
MSZ125-1	2.5	1	MSL505-3	Manistee
MSZ144-06Y	2.5	1	M5	McBride
MSZ146-4	2.5	1	M5	Manistee
MSZ194-2	2.5	1	MSQ035-3	MSU383-1
MSZ210-06	2.5	1	MSQ131-A	MSL211-3
MSZ235-5	2.5	1	MSR157-1Y	MSV477-5
MSZ245-06	2.5	1	Snowden	Elkton
MSZ269-15	2.5	1	MSU278-1Y	MSR127-3
MSZ300-1	2.5	1	W6822-3	MSU205-4
MSZ407-5P	2.5	1	Montanosa	Colonial Purple
MSZ419-1PY	2.5	1	MSN230-1RY	MSU200-5PP
MSZ421-3PY	2.5	1	ND039036-2R	Colonial Purple
MSZ427-6	2.5	1	MSQ440-2	NDTX4271-5R
MSZ431-4RY	2.5	1	MSR241-4RY	NDTX4271-5R
MSZ439-1PP	2.5	1	MST386-1P	ND039036-2R
MSZ465-1	2.5	1	MSQ279-1	1989-86061
MSZ507-2	2.5	1	MSL211-3	NY121
MSZ509-5	2.5	1	MSL211-3	MSQ086-3
MSZ510-2	2.5	1	MSL211-3	MSQ440-2
MSZ510-4	2.5	1	MSL211-3	MSQ440-2
MSZ518-2	2.5	1	MSP091-1	MSQ440-2
MSZ526-1	2.5	1	Superior	MSL211-3
MSZ526-2	2.5	1	Superior	MSL211-3
MSZ540-2	2.5	1	MSL211-3	Muziranzara
MSZ587-1	2.5	1	MSR241-4RY	MSL211-3

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2014	2014	FEMALE	MALE
	RATING	N		
<i>Sorted by ascending 2014 Rating:</i>				
MSZ589-2R	2.5	1	Superior	Colonial Purple
MSZ610-3	2.5	1	Chaposa	MSQ176-5
MSZ612-1	2.5	1	Basadre	MSQ086-3
MSZ615-4	2.5	1	Sieglinde	MSL211-3
MSZ620-7	2.5	1	Muziranzara	MSL211-3
MSZ705-3	2.5	1	HS66	BER83
MSZ706-3	2.5	1	J138K6A22	MSV020-2
MSZ722-5	2.5	1	MSM246-B	MSM246-B
Atlantic	2.8	3		
AF4157-06	3.0	1		
MSW360-18	3.0	1	MSR061-1	MSN238-A
MSY077-5	3.0	1	MST220-08	MSR169-8Y
MSZ063-06	3.0	1	MSR148-4	McBride
MSZ100-3	3.0	1	Boulder	MSV477-5
MSZ103-1	3.0	1	CO95051-7W	McBride
MSZ109-01PP	3.0	1	COMN07-W112BG1	MSU200-5PP
MSZ263-1Y	3.0	1	MSU088-1	McBride
MSZ280-3	3.0	1	MSV310-2	M5
MSZ303-1	3.0	1	NYE50-8	Lenape
MSZ457-4	3.0	1	Kalkaska	Alca Tarma
MSZ512-1	3.0	1	MSL211-3	MSV477-5
MSZ613-1	3.0	1	386056.17	MSL211-3
MSZ619-3	3.0	1	Chaposa	MSL211-3
MSZ706-1	3.0	1	J138K6A22	MSV020-2
MSZ706-5	3.0	1	J138K6A22	MSV020-2
B2727-02	3.5	1		
Dubloon	3.5	1		
MSZ409-1R	3.5	1	Muruta	MSR217-1R
MSZ424-1	3.5	1	NY121	MSR217-1R
MSZ457-9	3.5	1	Kalkaska	Alca Tarma
MSZ738-2	3.5	1	MSL316-EY	MSP091-1
MSZ748-1	3.5	1	MSP091-1	MSQ086-3

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.

N = Number of replications.

Table 9

2014 MSU LATE BLIGHT VARIETY TRIAL
CLARKSVILLE RESEARCH CENTER, MI

<i>Line Sort:</i>				<i>RAUDPC Sort:</i>					
LINE	N	RAUDPC ¹ MEAN	*	LINE	N	RAUDPC ¹ MEAN	*	Female	Male
AF3362-1Rus	3	34.8	LBS	MSS164-1	3	0.0	LBR	MSM188-1	Missaukee
AF4124-7	3	39.2	LBS	MSS206-2	3	0.0	LBR	UEC	Missaukee
AF4320-7	3	33.8	LBS	MSS810-23	3	0.0	LBR	Jacqueline Lee	MCR1-205
Agila	3	37.7	LBS	VSB16LBR8	3	0.0	LBR		
Alegria	3	35.9	LBS	Jacqueline Lee	3	0.0	LBR	Tollocan	Chaleur
AO3921-2	3	32.8	LBS	VSB2186F-302-8	3	0.1	LBR		
AO6021-T	3	32.7	LBS	QSMSU10-02	3	0.1	LBR	MSN106-2	MSL211-3
ARS102411-2	1	33.2	LBS	MSK136-2	3	0.2	LBR	Greta	B0718-3
Atlantic	3	31.4	LBS	MSS487-2	3	0.4	LBR	Stirling	Missaukee
ATX91137-1Rus	3	35.1	LBS	MST145-2	3	0.4	LBR	MSI152-A	MSL211-3
Beacon Chipper	3	30.2	LBS	J138K6A22	3	0.5	LBR		
BNC182-5	3	20.5	LBMS	MSS176-6	3	0.7	LBR	ND5822C-7	MSL211-3
CO05228-4R	2	40.0	LBS	MSS428-2	3	1.0	LBR	Snowden	NY121
Dakota Diamond	3	26.0	LBMS	MSQ131-A	3	1.1	LBR	MSF373-8	Missaukee
Elkton	3	32.9	LBS	MSS176-1	3	1.1	LBR	ND5822C-7	MSL211-3
Granola	3	19.2	LBMS	MSQ130-4	3	1.2	LBR	MSF373-8	MSJ456-4Y
J138K6A22	3	0.5	LBR	MSS576-5SPL	3	2.7	LBR	MSI005-20Y	MSL211-3
Jacqueline Lee	3	0.0	LBR	MSV235-2PY	3	2.7	LBR	Malinche	Colonial Purple
Lamoka	3	34.1	LBS	MSV396-4Y	3	6.3	LBMR	MSQ070-1	McBride
MN10003PLWR-02R	3	38.6	LBS	MSU161-1	3	7.3	LBMR	MSM182-1	MSL211-3
MN10003PLWR-03R	3	40.5	LBS	MSV440-6	3	7.6	LBMR	MSQ335-2	McBride
MN10003PLWR-07R	2	39.9	LBS	NY148	3	8.1	LBMR		
MN10013PLWR-04	3	40.2	LBS	MSL211-3	3	8.2	LBMR	MSG301-9	MSG274-3
MN10020PLWR-04R	3	39.7	LBS	MSV114-2	2	8.4	LBMR	MSJ316-A	MSQ070-1
MN10020PLWR-05R	2	39.9	LBS	MSV111-1	3	10.7	LBMR	MSJ316-A	MSN105-1
MSK136-2	3	0.2	LBR	MSS483-1	3	11.1	LBMR	MSM171-A	Missaukee
MSL211-3	3	8.2	LBMR	MST500-1	3	11.4	LBMR	Stirling	Boulder
MSM180-3	3	39.6	LBS	MSR061-1	3	11.6	LBMR	W1201	NY121
MSM270-BY	2	38.5	LBS	Olalla	2	14.7	LBMR		
MSQ086-3	3	33.1	LBS	MSS108-1	3	18.7	LBMS	McBride	Stirling
MSQ130-4	3	1.2	LBR	Granola	3	19.2	LBMS		
MSQ131-A	3	1.1	LBR	BNC182-5	3	20.5	LBMS		
MSR061-1	3	11.6	LBMR	NY154	3	23.1	LBMS		
MSR186-3P	3	26.8	LBMS	MST065-1	3	23.6	LBMS	Boulder	MSL211-3
MSS108-1	3	18.7	LBMS	Dakota Diamond	3	26.0	LBMS		
MSS164-1	3	0.0	LBR	MSW128-2	2	26.2	LBMS	MSM171-A	MSQ176-5
MSS176-1	3	1.1	LBR	MSV482-6	2	26.7	LBMS	Rosilin Eburu	MSP239-1
MSS176-6	3	0.7	LBR	MSR186-3P	3	26.8	LBMS	MN19525R	MSK034-1
MSS206-2	3	0.0	LBR	NY152	3	28.1	LBMS		
MSS428-2	3	1.0	LBR	Beacon Chipper	3	30.2	LBS		
MSS483-1	3	11.1	LBMR	W8152-1Rus	3	30.3	LBS		
MSS487-2	3	0.4	LBR	W6703-1Y	3	30.4	LBS		
MSS576-5SPL	3	2.7	LBR	W5955-1	3	31.1	LBS		
MSS810-23	3	0.0	LBR	Atlantic	3	31.4	LBS		
MST065-1	3	23.6	LBMS	Smiley	3	31.8	LBS		
MST145-2	3	0.4	LBR	MSV380-1	3	31.8	LBS	Pike	McBride
MST202-5	3	36.4	LBS	MSU285-1RUS	3	32.3	LBS	TXDH99-1RU	Silverton Russet
MST252-1Y	3	36.8	LBS	W9433-1Rus	3	32.4	LBS		
MST359-3	3	38.0	LBS	AO6021-T	3	32.7	LBS		
MST443-1	3	37.3	LBS	MSX324-1P	3	32.7	LBS	MSN105-1	Colonial Purple
MST458-4	3	39.6	LBS	AO3921-2	3	32.8	LBS		
MST500-1	3	11.4	LBMR	Elkton	3	32.9	LBS		
MSU161-1	3	7.3	LBMR	MSQ086-3	3	33.1	LBS	Onaway	Missaukee
MSU202-1P	3	35.1	LBS	ARS102411-2	1	33.2	LBS		
MSU285-1RUS	3	32.3	LBS	Silverton Russet	2	33.2	LBS		
MSU358-2	3	38.6	LBS	MSV093-1	3	33.7	LBS	McBride	MSP408-14Y
MSV093-1	3	33.7	LBS	QSMSU10-15	3	33.7	LBS	MSN106-2	MSL211-3

**2014 MSU LATE BLIGHT VARIETY TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>				<i>RAUDPC Sort:</i>					
LINE	N	RAUDPC ¹ MEAN	*	LINE	N	RAUDPC ¹ MEAN	*	Female	Male
MSV111-1	3	10.7	LBMR	AF4320-7	3	33.8	LBS		
MSV114-2	2	8.4	LBMR	NYWJ15-7	3	34.1	LBS		
MSV235-2PY	3	2.7	LBR	Lamoka	3	34.1	LBS		
MSV380-1	3	31.8	LBS	MSX125-5Y	3	34.2	LBS		
MSV383-B	2	37.0	LBS	Pike	3	34.3	LBS		
MSV396-4Y	3	6.3	LBMR	AF3362-1Rus	3	34.8	LBS		
MSV407-2	3	36.8	LBS	MSU202-1P	3	35.1	LBS	Colonial Purple	MSL211-3
MSV440-6	3	7.6	LBMR	MSV507-020	3	35.1	LBS	Tundra	Kalkaska
MSV482-6	2	26.7	LBMS	ATX91137-1Rus	3	35.1	LBS		
MSV505-2	3	39.7	LBS	W6822-3	3	35.2	LBS		
MSV507-020	3	35.1	LBS	Snowden	3	35.4	LBS		
MSV507-052	3	38.3	LBS	MSX035-WP	2	35.7	LBS	Beacon Chipper	ARS10091WP
MSW128-2	2	26.2	LBMS	Alegria	3	35.9	LBS		
MSX007-4RR	3	38.9	LBS	MST202-5	3	36.4	LBS	MSJ147-1	McBride
MSX035-WP	2	35.7	LBS	MST252-1Y	3	36.8	LBS	MSL024-AY	MSL211-3
MSX125-5Y	3	34.2	LBS	MSV407-2	3	36.8	LBS	MSQ070-1	MSP239-1
MSX137-6	3	38.3	LBS	MSV383-B	2	37.0	LBS	Pike	MSN238-A
MSX324-1P	3	32.7	LBS	MST443-1	3	37.3	LBS	MSM070-1	OP
NY148	3	8.1	LBMR	Russet Norkotah	6	37.5	LBS		
NY152	3	28.1	LBMS	Agila	3	37.7	LBS		
NY154	3	23.1	LBMS	QSMSU08-04	3	37.9	LBS	MSM037-3	MSL211-3
NYWJ15-7	3	34.1	LBS	MST359-3	3	38.0	LBS	MSM185-1	Missaukee
Olalla	2	14.7	LBMR	W9133-1Rus	3	38.0	LBS		
Onaway	3	40.3	LBS	Sebec	3	38.2	LBS		
Pike	3	34.3	LBS	MSX137-6	3	38.3	LBS	Eva	MSL211-3
Purple Haze	3	38.9	LBS	MSV507-052	3	38.3	LBS	Tundra	Kalkaska
QSMSU01-10	3	39.1	LBS	Red LaSoda	3	38.5	LBS		
QSMSU08-04	3	37.9	LBS	MSM270-BY	2	38.5	LBS	84SD22	W5337.3
QSMSU10-02	3	0.1	LBR	MN10003PLWR-02R	3	38.6	LBS		
QSMSU10-15	3	33.7	LBS	W6609-3	3	38.6	LBS		
Reba	3	40.4	LBS	MSU358-2	3	38.6	LBS	MSN170-A	W4013-3
Red LaSoda	3	38.5	LBS	MSX007-4RR	3	38.9	LBS	ARS10117RR	Raspberry
Red Norland	4	40.3	LBS	Purple Haze	3	38.9	LBS		
Russet Norkotah	6	37.5	LBS	QSMSU01-10	3	39.1	LBS	Beacon Chipper	MSJ147-1
Sebec	3	38.2	LBS	AF4124-7	3	39.2	LBS		
Silverton Russet	2	33.2	LBS	MSM180-3	3	39.6	LBS	Stirling	MSH098-2
Smiley	3	31.8	LBS	Yukon Gold	6	39.6	LBS		
Snowden	3	35.4	LBS	MST458-4	3	39.6	LBS	Pike	Missaukee
VSB16LBR8	3	0.0	LBR	MSV505-2	3	39.7	LBS	Tundra	Missaukee
VSB2186F-302-8	3	0.1	LBR	MN10020PLWR-04R	3	39.7	LBS		
W5955-1	3	31.1	LBS	MN10003PLWR-07R	2	39.9	LBS		
W6609-3	3	38.6	LBS	MN10020PLWR-05R	2	39.9	LBS		
W6703-1Y	3	30.4	LBS	CO05228-4R	2	40.0	LBS		
W6822-3	3	35.2	LBS	MN10013PLWR-04	3	40.2	LBS		
W8152-1Rus	3	30.3	LBS	Red Norland	4	40.3	LBS		
W9133-1Rus	3	38.0	LBS	Onaway	3	40.3	LBS		
W9433-1Rus	3	32.4	LBS	Reba	3	40.4	LBS		
Yukon Gold	6	39.6	LBS	MN10003PLWR-03R	3	40.5	LBS		
HSD _{0.05}		15.0				15.0			

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

*LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible

LB Isolate used: US-23

Table 10

2014 LATE BLIGHT EARLY GENERATION TRIALS
CLARKSVILLE RESEARCH CENTER, MI

<i>Line Sort:</i>				<i>RAUDPC Sort:</i>					
LINE	N	RAUDPC ¹ MEAN	*	LINE	N	RAUDPC ¹ MEAN	*	Female	Male
2XLB-17	1	0.0	LBR	2XLB-17	1	0.0	LBR		
2XLB-60	1	2.6	LBR	Missaukee	1	0.0	LBR	NY88	Tollocan
Barbara	1	20.0	LBMS	MSQ176-5	1	0.0	LBR	MSI152-A	Missaukee
Chiloe Ancud	1	24.4	LBMS	MSQ440-2	1	0.0	LBR	MSK214-1R	Missaukee
Loman	1	6.9	LBR	MSS810-23	1	0.0	LBR	Jacqueline Lee	MCR1-205
LT-7	1	33.3	LBS	MST235-5SPL	1	0.0	LBR	MSK128-A	MSN188-1
Missaukee	1	0.0	LBR	MSU016-2	1	0.0	LBR	Boulder	MSN105-1
MSBB699-27	1	21.5	LBMS	MSV235-2PY	1	0.0	LBR	Malinche	Colonial Purple
MSP497-1	1	1.0	LBR	MSV282-4Y	1	0.0	LBR	Monserrat	MSN105-1
MSQ086-3	1	33.2	LBS	MSV284-1	1	0.0	LBR	Monserrat	MSP239-1
MSQ176-5	1	0.0	LBR	MSV482-6	1	0.0	LBR	Rosilin Eburu	MSP239-1
MSQ440-2	1	0.0	LBR	MSW092-1	1	0.0	LBR	MSL106-AY	Montserrat
MSR058-1	1	9.2	LBMR	MSW151-5	1	0.0	LBR	Montanosa	MSL211-3
MSS165-2Y	1	24.9	LBMS	MSW464-3	1	0.0	LBR	MSM246-B	MSR102-3
MSS428-1	1	22.7	LBMS	MSX293-1Y	1	0.0	LBR	MSM288-2Y	MSQ176-5
MSS805-08	1	4.2	LBR	MSY437-1Y	1	0.0	LBR	Torricon	MSQ440-2
MSS810-23	1	0.0	LBR	MSZ057-3	1	0.0	LBR	MSQ070-1	ND8334Cb-3
MST075-1R	1	39.9	LBS	MSZ263-4	1	0.0	LBR	MSU088-1	McBride
MST148-3	1	2.5	LBR	MSZ427-10R	1	0.0	LBR	MSQ440-2	NDTX4271-5R
MST235-5SPL	1	0.0	LBR	MSZ510-2	1	0.0	LBR	MSL211-3	MSQ440-2
MST306-1	1	6.3	LBR	MSZ512-1	1	0.0	LBR	MSL211-3	MSV477-5
MST359-3	1	38.6	LBS	MSZ537-4	1	0.0	LBR	MSL211-3	Chaposa
MST412-3	1	0.4	LBR	MSZ551-1	1	0.0	LBR	MSM182-1	MSL268-D
MSU016-2	1	0.0	LBR	MSZ562-4	1	0.0	LBR	Muruta	MSL211-3
MSU198-01SPL	1	18.9	LBMS	MSZ570-1	1	0.0	LBR	ND8331cb-3	MSL211-3
MSU245-1	1	13.0	LBMR	MSZ609-1P	1	0.0	LBR	386056.17	Colonial Purple
MSU379-01	1	39.9	LBS	MSZ620-7	1	0.0	LBR	Muziranzara	MSL211-3
MSV114-2	1	6.7	LBR	MSZ705-3	1	0.0	LBR	HS66	BER83
MSV117-1	1	22.3	LBMS	MSZ706-1	1	0.0	LBR	J138K6A22	MSV020-2
MSV165-1	1	31.2	LBS	MSZ706-3	1	0.0	LBR	J138K6A22	MSV020-2
MSV177-1	1	38.8	LBS	MSZ1100-3	1	0.1	LBR	Boulder	MSV477-5
MSV186-1	1	0.2	LBR	MSZ610-3	1	0.2	LBR	Chaposa	MSQ176-5
MSV235-2PY	1	0.0	LBR	MSV186-1	1	0.2	LBR	LBR9	Colonial Purple
MSV282-4Y	1	0.0	LBR	MSZ436-2SPL	1	0.2	LBR	MSS576-05SPL	MSQ440-2
MSV284-1	1	0.0	LBR	MSZ578-1Y	1	0.2	LBR	Nicola	Santa Ana
MSV301-02	1	38.9	LBS	MST412-3	1	0.4	LBR	MSN105-1	MSM051-3
MSV394-3	1	27.1	LBS	MSZ199-1	1	0.4	LBR	MSQ070-1	Kalkaska
MSV397-2	1	28.6	LBS	MSZ510-4	1	0.4	LBR	MSL211-3	MSQ440-2
MSV407-2	1	34.6	LBS	MSZ513-2	1	0.4	LBR	MSL268-D	MSL211-3
MSV482-6	1	0.0	LBR	MSZ616-1	1	0.4	LBR	Nicola	MSL211-3
MSV498-1	1	36.2	LBS	MSZ409-1R	1	0.4	LBR	Muruta	MSR217-1R
MSV507-10	1	26.0	LBS	MSZ537-3	1	0.4	LBR	MSL211-3	Chaposa
MSW027-1	1	24.2	LBMS	MSZ702-04	1	0.4	LBR	CIP575045	84SD22
MSW092-1	1	0.0	LBR	MSZ091-3	1	0.4	LBR	B1992-106	MSL211-3
MSW100-1	1	2.9	LBR	MSZ553-1	1	0.5	LBR	MSM182-1	MSQ176-5
MSW111-1	1	22.1	LBMS	MSZ250-1	1	0.6	LBR	MSS070-B	McBride
MSW119-2	1	7.3	LBR	MSZ419-1PY	1	0.6	LBR	MSN230-1RY	MSU200-5PP
MSW140-3	1	28.0	LBS	MSZ620-1	1	0.6	LBR	Muziranzara	MSL211-3
MSW151-5	1	0.0	LBR	MSP497-1	1	1.0	LBR	MSJ456-4	NY120
MSW163-3	1	37.8	LBS	MSZ610-7	1	1.3	LBR	Chaposa	MSQ176-5
MSW164-2	1	40.5	LBS	MSX198-5	1	1.3	LBR	Missaukee	OP
MSW229-1P	1	33.5	LBS	MSZ519-3	1	1.4	LBR	MSQ440-2	MSU320-2Y
MSW237-4Y	1	26.5	LBS	MSY515-1	1	1.7	LBR	Reba	Haig Ind 98
MSW242-5Y	1	5.2	LBR	MSZ210-08	1	1.9	LBR	MSQ131-A	MSL211-3
MSW324-01	1	2.3	LBR	MSZ454-1	1	1.9	LBR	Atlantic	Enfula
MSW326-6	1	35.7	LBS	MSZ702-01	1	2.0	LBR	CIP575045	84SD22
MSW343-2R	1	19.0	LBMS	MSZ157-3	1	2.1	LBR	NDU030-1 (NY121)	Missaukee
MSW437-9	1	27.7	LBS	MSW324-01	1	2.3	LBR	MSQ070-1	Marcy
MSW453-1P	1	8.3	LBMR	MST148-3	1	2.5	LBR	MSI152-A	Yukon Gold
MSW464-3	1	0.0	LBR	2XLB-60	1	2.6	LBR		
MSW474-01	1	23.2	LBMS	MSW100-1	1	2.9	LBR	LBR9	MSP292-7
MSW537-6	1	24.9	LBMS	MSZ547-3	1	3.3	LBR	MSL505-3	MSL211-3
MSW569-2	1	11.4	LBMR	MSY507-2	1	3.5	LBR	Superior	MSL211-3
MSX001-4WP	1	40.5	LBS	MSZ004-1	1	3.8	LBR	Atlantic	MSL211-3
MSX011-4	1	37.3	LBS	MSZ057-5	1	3.8	LBR	MSQ070-1	ND8334Cb-3

**2014 LATE BLIGHT EARLY GENERATION TRIALS
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>				<i>RAUDPC Sort:</i>					
LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹		Female	Male
		MEAN	*			MEAN	*		
MSX148-1WP	1	18.0	LBMS	MSZ251-1	1	3.8	LBR	MSS070-B	Lamoka
MSX194-3	1	11.3	LBMR	MSZ611-2	1	3.8	LBR	Perkoz	MSL211-3
MSX196-1	1	11.1	LBMR	MSZ706-5	1	3.8	LBR	J138K6A22	MSV020-2
MSX198-5	1	1.3	LBR	MSZ2186F-302-8	1	3.8	LBR		
MSX293-1Y	1	0.0	LBR	MSZ613-1	1	3.9	LBR	386056.17	MSL211-3
MSX351-3P	1	32.4	LBS	MSS805-08	1	4.2	LBR	Atlantic	MCR1-150
MSX469-2	1	24.6	LBMS	MSY491-2Y	1	4.2	LBR	MSL183-AY	MSL211-3
MSX517-5Y	1	28.8	LBS	MSZ16LBR8	1	4.2	LBR		
MSX526-1	1	32.2	LBS	MSY452-1	1	4.2	LBR	MSQ176-5	MSL211-3
MSX526-1	1	38.6	LBS	MSY071-1	1	4.6	LBR	MST220-08	MSR102-3
MSY012-2	1	8.3	LBMR	MSY474-08	1	5.1	LBR	MSM182-1	Haig Ind 98
MSY071-1	1	4.6	LBR	MSW242-5Y	1	5.2	LBR	NY121	Malinche
MSY089-2	1	35.9	LBS	MSZ552-2P	1	5.3	LBR	MSM182-1	Colonial Purple
MSY169-4	1	13.4	LBMR	MST306-1	1	6.3	LBR	Liberator	Missaukee
MSY437-1Y	1	0.0	LBR	MSZ424-1	1	6.3	LBR	NY121	MSR217-1R
MSY452-1	1	4.2	LBR	MSZ215-7	1	6.3	LBR	MSR058-1	MSQ086-3
MSY468-16	1	7.5	LBR	Stirling	1	6.3	LBR		
MSY474-08	1	5.1	LBR	MSZ620-3	1	6.4	LBR	Muziranzara	MSL211-3
MSY491-2Y	1	4.2	LBR	MSV114-2	1	6.7	LBR	MSJ316-A	MSQ070-1
MSY494-6	1	40.5	LBS	MSZ210-6	1	6.7	LBR	MSQ131-A	MSL211-3
MSY507-2	1	3.5	LBR	Loman	1	6.9	LBR		
MSY515-1	1	1.7	LBR	MSW119-2	1	7.3	LBR	MSM171-A	MSR036-5
MSY520-1	1	8.3	LBMR	MSZ612-1	1	7.3	LBR	Basadre	MSQ086-3
MSY557-2Y	1	23.6	LBMS	MSY468-16	1	7.5	LBR	NYL235-4	MSL211-3
MSY569-1RusY	1	20.8	LBMS	NY121	1	7.9	LBR		
MSY713-1	1	40.1	LBS	MSZ464-3	1	8.1	LBMR	MSQ070-1	Alca Tarma
MSY728-1	1	39.5	LBS	MSW453-1P	1	8.3	LBMR	Kenya Baraka	Colonial Purple
MSZ001-1	1	24.1	LBMS	MSY012-2	1	8.3	LBMR	MSQ070-1	ND8304-2
MSZ004-1	1	3.8	LBR	MSY520-1	1	8.3	LBMR	MSQ440-2	MSN105-1
MSZ007-09	1	37.5	LBS	MSZ204-1P	1	9.0	LBMR	MSQ070-1	MSU200-5PP
MSZ007-10	1	37.9	LBS	MSR058-1	1	9.2	LBMR	W1201	MSJ319-1
MSZ037-1Y	1	38.6	LBS	MSZ433-3P	1	9.2	LBMR	MSS483-1	MSU200-5PP
MSZ037-2Y	1	38.3	LBS	MSZ612-3	1	9.4	LBMR	Basadre	MSQ086-3
MSZ037-5	1	25.6	LBS	MSZ154-1	1	10.0	LBMR	NDU022-1	MSQ086-3
MSZ037-6	1	36.5	LBS	MSZ215-2	1	11.0	LBMR	MSR058-1	MSQ086-3
MSZ038-1	1	33.3	LBS	MSX196-1	1	11.1	LBMR	Missaukee	Manistee
MSZ040-1	1	23.6	LBMS	MSX194-3	1	11.3	LBMR	Missaukee	C095051-7W
MSZ042-5	1	13.3	LBMR	MSW569-2	1	11.4	LBMR	MSI152-A	McBride
MSZ049-2	1	25.0	LBS	MSZ515-1Y	1	12.4	LBMR	MSM288-2Y	MSU320-2Y
MSZ051-1	1	24.2	LBMS	MSZ708-6	1	12.7	LBMR	MSL316-EY	84SD22
MSZ051-5	1	31.5	LBS	MSU245-1	1	13.0	LBMR	NY132	MSP542-4
MSZ055-3	1	22.1	LBMS	MSZ042-5	1	13.3	LBMR	ND8331Cb-3	MSQ086-3
MSZ057-3	1	0.0	LBR	MSY169-4	1	13.4	LBMR	Boulder	MSR102-3
MSZ057-5	1	3.8	LBR	MSZ218-5	1	14.0	LBMR	MSR061-1	MSQ086-3
MSZ073-1	1	31.3	LBS	MSZ220-01	1	15.3	LBMR	MSR061-1	MSS297-3
MSZ073-2Y	1	38.4	LBS	MSZ216-4	1	15.5	LBMR	MSR058-1	MSS297-3
MSZ091-3	1	0.4	LBR	MSZ436-1	1	16.0	LBMR	MSS576-05SPL	MSQ440-2
MSZ091-4	1	37.5	LBS	Olalla	1	16.7	LBMR		
MSZ091-6	1	32.9	LBS	MSX148-1WP	1	18.0	LBMS	MSH228-6	ARS10091WP
MSZ092-2	1	40.5	LBS	MSZ407-7	1	18.4	LBMS	Montanosa	Colonial Purple
MSZ100-1	1	24.1	LBMS	MSZ453-4	1	18.5	LBMS	McBride	Alca Tarma
MSZ100-3	1	0.1	LBR	MSU198-01SPL	1	18.9	LBMS	MSN111-4PP	MSN105-1
MSZ100-4	1	35.0	LBS	MSW343-2R	1	19.0	LBMS	MSQ440-2	NDTX4271-5R
MSZ149-6	1	36.0	LBS	MSZ407-2	1	19.0	LBMS	Montanosa	Colonial Purple
MSZ152-1	1	27.3	LBS	MSZ300-1	1	19.9	LBMS	W6822-3	MSU205-4
MSZ154-1	1	10.0	LBMR	Barbara	1	20.0	LBMS		
MSZ157-3	1	2.1	LBR	MSZ200-3	1	20.2	LBMS	MSQ070-1	Lamoka
MSZ159-3	1	22.8	LBMS	MSZ453-1	1	20.6	LBMS	McBride	Alca Tarma
MSZ199-1	1	0.4	LBR	MSY569-1RusY	1	20.8	LBMS	Torrison	C099053-3RUS
MSZ200-3	1	20.2	LBMS	MSZ702-03	1	21.1	LBMS	CIP575045	84SD22
MSZ204-1P	1	9.0	LBMR	MSBB699-27	1	21.5	LBMS	MSV507-121	MSV507-009 (099)
MSZ205-1	1	24.8	LBMS	MSZ748-1	1	21.8	LBMS	MSP091-1	MSQ086-3
MSZ210-08	1	1.9	LBR	MSW111-1	1	22.1	LBMS	MSL505-3	MSR061-1
MSZ210-6	1	6.7	LBR	MSZ055-3	1	22.1	LBMS	MSQ070-1	M5
MSZ215-2	1	11.0	LBMR	MSV117-1	1	22.3	LBMS	Missaukee	MSH228-6
MSZ215-7	1	6.3	LBR	MSS428-1	1	22.7	LBMS	Snowden	NY121
MSZ216-4	1	15.5	LBMR	MSZ522-5	1	22.7	LBMS	MSS070-B	MSS297-3

**2014 LATE BLIGHT EARLY GENERATION TRIALS
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>				<i>RAUDPC Sort:</i>					
LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹		Female	Male
		MEAN	*			MEAN	*		
MSZ218-5	1	14.0	LBMR	MSZ159-3	1	22.8	LBMS	NDU030-1 (NY121)	MSV477-5
MSZ220-01	1	15.3	LBMR	MSZ427-1R	1	22.9	LBMS	MSQ440-2	NDTX4271-5R
MSZ235-4	1	36.0	LBS	MSW474-01	1	23.2	LBMS	MSN190-2	MSP516-A
MSZ235-5	1	38.4	LBS	MSY557-2Y	1	23.6	LBMS	Torricon	Silverton Russet
MSZ235-7	1	26.1	LBS	MSZ040-1	1	23.6	LBMS	NDU045-1	MSR036-5
MSZ250-1	1	0.6	LBR	MSZ001-1	1	24.1	LBMS	1989-86061	Manistee
MSZ251-1	1	3.8	LBR	MSZ100-1	1	24.1	LBMS	Boulder	MSV477-5
MSZ263-1Y	1	36.5	LBS	MSZ452-1	1	24.1	LBMS	Atlantic	Chaposa
MSZ263-4	1	0.0	LBR	MSW027-1	1	24.2	LBMS	Eva	MSQ176-5
MSZ264-1	1	35.1	LBS	MSZ051-1	1	24.2	LBMS	Pike	Chaposa
MSZ267-4	1	29.7	LBS	MSZ610-1	1	24.3	LBMS	Chaposa	MSQ176-5
MSZ268-1	1	31.5	LBS	MSZ456-2	1	24.4	LBMS	McBride	Chaposa
MSZ269-08Y	1	27.3	LBS	Chiloe Aneud	1	24.4	LBMS		
MSZ269-12	1	32.6	LBS	MSX469-2	1	24.6	LBMS	MSQ070-1	OP
MSZ269-13	1	35.6	LBS	MSZ205-1	1	24.8	LBMS	MSQ070-1	MSU383-A
MSZ269-15	1	38.4	LBS	MSS165-2Y	1	24.9	LBMS	MSM188-1	MSL159-AY
MSZ269-17	1	32.6	LBS	MSW537-6	1	24.9	LBMS	MSM070-1	MSP516-A
MSZ269-18	1	36.5	LBS	MSZ049-2	1	25.0	LBS	MSN251-1Y	Lamoka
MSZ269-19	1	35.5	LBS	MSZ037-5	1	25.6	LBS	NDU030-1 (NY121)	McBride
MSZ269-22	1	34.9	LBS	MSV507-10	1	26.0	LBS	Tundra	Kalkaska
MSZ270-1	1	38.6	LBS	MSZ235-7	1	26.1	LBS	MSR157-1Y	MSV477-5
MSZ300-1	1	19.9	LBMS	MSZ509-5	1	26.3	LBS	MSL211-3	MSQ086-3
MSZ405-1PP	1	35.9	LBS	MSW237-4Y	1	26.5	LBS	Montserrat	MSN191-2Y
MSZ407-2	1	19.0	LBMS	MSZ507-2	1	26.9	LBS	MSL211-3	NY121
MSZ407-5P	1	36.5	LBS	MSV394-3	1	27.1	LBS	MSQ070-1	MSH228-6
MSZ407-7	1	18.4	LBMS	MSZ152-1	1	27.3	LBS	ND8307c-3	MSR036-5
MSZ409-1R	1	0.4	LBR	MSZ269-08Y	1	27.3	LBS	MSU278-1Y	MSR127-2
MSZ414-1	1	39.9	LBS	MSW437-9	1	27.7	LBS	Boulder	MSR036-5
MSZ416-8RY	1	39.4	LBS	MSW140-3	1	28.0	LBS	MegaChip	Missaukee
MSZ419-1PY	1	0.6	LBR	MSV397-2	1	28.6	LBS	MSQ070-1	MSJ147-1
MSZ424-1	1	6.3	LBR	MSX517-5Y	1	28.8	LBS	Spartan Splash	MSQ176-5
MSZ427-10R	1	0.0	LBR	MSZ267-4	1	29.7	LBS	MSU278-1Y	Kalkaska
MSZ427-1R	1	22.9	LBMS	MSZ459-5Y	1	29.9	LBS	Lamoka	Alca Tarma
MSZ427-3R	1	39.4	LBS	MSZ615-2	1	30.3	LBS	Sieglinde	MSL211-3
MSZ427-6	1	37.5	LBS	PVYR Red Marker #1	1	30.9	LBS		
MSZ433-3P	1	9.2	LBMR	MSV165-1	1	31.2	LBS	Kufri Jeevan	MSL211-3
MSZ436-1	1	16.0	LBMR	MSZ073-1	1	31.3	LBS	MSU278-1Y	MSR169-8Y
MSZ436-2SPL	1	0.2	LBR	MSZ268-1	1	31.5	LBS	MSU278-1Y	Pike
MSZ452-1	1	24.1	LBMS	MSZ051-5	1	31.5	LBS	Pike	Chaposa
MSZ453-1	1	20.6	LBMS	MSX526-1	1	32.2	LBS	MSR036-5	Lamoka
MSZ453-4	1	18.5	LBMS	MSZ526-1	1	32.2	LBS	Superior	MSL211-3
MSZ454-1	1	1.9	LBR	MSX351-3P	1	32.4	LBS	Colonial Purple	MSL211-3
MSZ456-2	1	24.4	LBMS	MSZ269-12	1	32.6	LBS	MSU278-1Y	MSR127-2
MSZ459-5Y	1	29.9	LBS	MSZ269-17	1	32.6	LBS	MSU278-1Y	MSR127-2
MSZ462-1R	1	39.1	LBS	MSZ091-6	1	32.9	LBS	Elkton	MSL211-3
MSZ464-3	1	8.1	LBMR	MSQ086-3	1	33.2	LBS	Onaway	Missaukee
MSZ502-1Y	1	40.5	LBS	MSZ038-1	1	33.3	LBS	NDU030-1	M5
MSZ507-2	1	26.9	LBS	LT-7	1	33.3	LBS		
MSZ509-5	1	26.3	LBS	MSW229-1P	1	33.5	LBS	MI Purple	MSN105-1
MSZ510-2	1	0.0	LBR	MSZ615-4	1	34.3	LBS	Sieglinde	MSL211-3
MSZ510-4	1	0.4	LBR	MSV407-2	1	34.6	LBS	MSQ070-1	MSP239-1
MSZ512-1	1	0.0	LBR	MSZ269-22	1	34.9	LBS	MSU278-1Y	MSR127-2
MSZ513-2	1	0.4	LBR	MSZ100-4	1	35.0	LBS	Boulder	MSV477-5
MSZ515-1Y	1	12.4	LBMR	MSZ264-1	1	35.1	LBS	MSU128-2	ARS10241-2W
MSZ516-6	1	37.1	LBS	MSZ269-19	1	35.5	LBS	MSU278-1Y	MSR127-2
MSZ518-2	1	39.5	LBS	MSZ539-3	1	35.5	LBS	MSL211-3	MSL268-D
MSZ519-3	1	1.4	LBR	MSZ269-13	1	35.6	LBS	MSU278-1Y	MSR127-2
MSZ522-5	1	22.7	LBMS	MSW326-6	1	35.7	LBS	MSQ070-1	MSN190-2
MSZ526-1	1	32.2	LBS	MSZ405-1PP	1	35.9	LBS	MSM182-1	MSU200-5PP
MSZ526-2	1	39.8	LBS	MSY089-2	1	35.9	LBS	MSS176-1	B2731-2
MSZ533-5	1	39.4	LBS	MSZ149-6	1	36.0	LBS	MSN148-A	MSQ086-3
MSZ533-7	1	38.6	LBS	MSZ235-4	1	36.0	LBS	MSR157-1Y	MSV477-5
MSZ537-3	1	0.4	LBR	MSV498-1	1	36.2	LBS	Snowden	MSQ283-2
MSZ537-4	1	0.0	LBR	MSZ037-6	1	36.5	LBS	NDU030-1 (NY121)	McBride
MSZ539-3	1	35.5	LBS	MSZ263-1Y	1	36.5	LBS	MSU088-1	McBride
MSZ540-2	1	36.5	LBS	MSZ269-18	1	36.5	LBS	MSU278-1Y	MSR127-2
MSZ547-3	1	3.3	LBR	MSZ407-5P	1	36.5	LBS	Montanosa	Colonial Purple

**2014 LATE BLIGHT EARLY GENERATION TRIALS
CLARKSVILLE RESEARCH CENTER, MI**

Line Sort:

RAUDPC Sort:

LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹		Female	Male
		MEAN	*			MEAN	*		
MSZ551-1	1	0.0	LBR	MSZ540-2	1	36.5	LBS	MSL211-3	Muziranzara
MSZ552-2P	1	5.3	LBR	MSZ738-2	1	36.5	LBS	MSL316-EY	MSP091-1
MSZ553-1	1	0.5	LBR	MSZ516-6	1	37.1	LBS	Montanosa	MSL211-3
MSZ558-1Y	1	38.6	LBS	MSX011-4	1	37.3	LBS	ARS10241-2	MSN105-1
MSZ562-4	1	0.0	LBR	MSZ007-09	1	37.5	LBS	Atlantic	MSQ086-3
MSZ570-1	1	0.0	LBR	MSZ427-6	1	37.5	LBS	MSQ440-2	NDTX4271-5R
MSZ578-1Y	1	0.2	LBR	MSZ091-4	1	37.5	LBS	Elkton	MSL211-3
MSZ587-1	1	40.5	LBS	MSW163-3	1	37.8	LBS	Atlantic	MSR036-5
MSZ596-2	1	40.3	LBS	MSZ007-10	1	37.9	LBS	Atlantic	MSQ086-3
MSZ609-1P	1	0.0	LBR	MSZ618-1	1	37.9	LBS	Muziranzara	MSQ440-3
MSZ610-1	1	24.3	LBMS	MSZ619-3	1	38.2	LBS	Chaposa	MSL211-3
MSZ610-3	1	0.2	LBR	MSZ037-2Y	1	38.3	LBS	NDU030-1 (NY121)	McBride
MSZ610-7	1	1.3	LBR	MSZ073-2Y	1	38.4	LBS	MSU278-1Y	MSR169-8Y
MSZ611-2	1	3.8	LBR	MSZ235-5	1	38.4	LBS	MSR157-1Y	MSV477-5
MSZ612-1	1	7.3	LBR	MSZ269-15	1	38.4	LBS	MSU278-1Y	MSR127-3
MSZ612-3	1	9.4	LBMR	MST359-3	1	38.6	LBS	MSM185-1	Missaukee
MSZ613-1	1	3.9	LBR	MSX526-1	1	38.6	LBS	MSR036-5	Lamoka
MSZ615-2	1	30.3	LBS	MSZ037-1Y	1	38.6	LBS	NDU030-1 (NY121)	McBride
MSZ615-4	1	34.3	LBS	MSZ270-1	1	38.6	LBS	MSU278-1Y	MSR157-1Y
MSZ616-1	1	0.4	LBR	MSZ533-7	1	38.6	LBS	A00ETB12-2	MSL211-3
MSZ618-1	1	37.9	LBS	MSZ558-1Y	1	38.6	LBS	MSM183-1	MSQ086-3
MSZ619-3	1	38.2	LBS	MSV177-1	1	38.8	LBS	MSL268-D	McBride
MSZ620-1	1	0.6	LBR	MSV301-02	1	38.9	LBS	MSN105-1	MSP197-1
MSZ620-3	1	6.4	LBR	MSZ462-1R	1	39.1	LBS	OG-08-168	MSL211-3
MSZ620-7	1	0.0	LBR	MSZ416-8RY	1	39.4	LBS	MSN230-1RY	NDTX4271-5R
MSZ622-1	1	39.5	LBS	MSZ427-3R	1	39.4	LBS	MSQ440-2	NDTX4271-5R
MSZ702-01	1	2.0	LBR	MSZ533-5	1	39.4	LBS	A00ETB12-2	MSL211-3
MSZ702-03	1	21.1	LBMS	MSY728-1	1	39.5	LBS	523-3-S7	84SD22
MSZ702-04	1	0.4	LBR	MSZ518-2	1	39.5	LBS	MSP091-1	MSQ440-2
MSZ705-3	1	0.0	LBR	MSZ622-1	1	39.5	LBS	Satina	MSL211-3
MSZ706-1	1	0.0	LBR	MSZ526-2	1	39.8	LBS	Superior	MSL211-3
MSZ706-3	1	0.0	LBR	MST075-1R	1	39.9	LBS	Dakota Jewel	MSL211-3
MSZ706-5	1	3.8	LBR	MSU379-01	1	39.9	LBS	MSP238-1	Missaukee
MSZ708-6	1	12.7	LBMR	MSZ414-1	1	39.9	LBS	MSN230-1RY	Colonial Purple
MSZ738-2	1	36.5	LBS	MSY713-1	1	40.1	LBS	MSS703-5	MCR150
MSZ748-1	1	21.8	LBMS	MSZ596-2	1	40.3	LBS	MSS483-1	MSQ440-2
NY121	1	7.9	LBR	MSW164-2	1	40.5	LBS	Atlantic	MSR061-1
Olalla	1	16.7	LBMR	MSX001-4WP	1	40.5	LBS	ARS10091WP	MSL211-3
PVYR Red Marker #1	1	30.9	LBS	MSY494-6	1	40.5	LBS	Dakota Diamond	MSL211-3
Stirling	1	6.3	LBR	MSZ092-2	1	40.5	LBS	Elkton	MSQ086-3
VSB16LBR8	1	4.2	LBR	MSZ502-1Y	1	40.5	LBS	MSI005-20Y	MSQ440-2
VSB2186F-302-8	1	3.8	LBR	MSZ587-1	1	40.5	LBS	MSR241-4RY	MSL211-3

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

*LBR = Late Blight Resistant; LBMR = Late Blight Moderately Resistant; LBMS = Late Blight Moderately Susceptible; LBS = Late Blight Susceptible
LB Isolate used: US-23

Table 11

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%)	AVERAGE SPOTS/TUBER
		0	1	2	3	4	5+	BRUISE FREE	
ADAPTATION TRIAL, CHIP-PROCESSING LINES									
MSV093-1	1.081	8	11	4	2	0	0	32	1.0
W5955-1	1.094	7	7	5	6	0	0	28	1.4
McBride	1.089	5	6	12	1	1	0	20	1.5
W6609-3	1.095	5	7	7	6	0	0	20	1.6
BNC182-5	1.090	7	2	9	5	1	1	28	1.8
Lamoka	1.096	5	6	4	9	1	0	20	1.8
Manistee	1.092	4	6	6	6	1	2	16	2.0
Sebec (AF0338-17)	1.091	2	8	4	7	3	1	8	2.2
W6822-3	1.101	2	4	8	11	1	0	8	2.2
MSR061-1	1.092	5	1	7	8	3	1	20	2.2
MSL007-B	1.095	2	3	4	11	5	0	8	2.6
MSS428-2	1.090	1	2	10	4	3	5	4	2.8
Atlantic	1.093	0	3	6	7	6	3	0	3.0
FL1879	1.089	2	2	5	5	3	8	8	3.2
MSM246-B	1.097	1	0	6	8	6	4	4	3.2
MSR127-2	1.092	1	1	4	8	6	5	4	3.3
NY152	1.092	0	1	4	8	7	5	0	3.4
Snowden	1.096	0	0	3	7	14	2	0	3.6
Elkton	1.095	0	3	1	5	10	6	0	3.6
NY148	1.099	0	0	0	0	4	21	0	4.8
RUSSET TRIAL									
ATX91137-1Rus	1.079	20	4	1	0	0	0	80	0.2
Russet Norkotah	1.073	18	10	4	0	0	0	56	0.6
MSU285-1Rus(2reps)	1.076	13	8	2	1	0	0	54	0.6
W8152-1Rus	1.091	11	10	4	0	0	0	44	0.7
AF4124-7	1.085	11	8	7	0	0	0	42	0.8
W9133-1Rus	1.073	8	11	4	1	0	0	33	0.9
A06021-T	1.084	7	9	5	3	0	0	29	1.2
Silverton Russet	1.077	6	8	8	2	0	0	25	1.3
AF3362-1Rus	1.088	4	11	8	0	1	0	17	1.3
W9433-1Rus	1.085	4	12	4	4	0	1	16	1.5
A03921-2	1.097	1	12	8	3	0	0	4	1.5
AF4320-7	1.085	3	5	9	5	2	0	13	1.9
ADAPTATION TRIAL, TABLESTOCK LINES									
Red Norland	1.064	21	5	0	0	0	0	81	0.2
MSQ131-A	1.071	17	2	1	0	0	0	85	0.2
Agila	1.069	17	9	0	0	0	0	65	0.3
MSM288-2Y	1.080	19	6	0	1	0	0	73	0.3
CO5228-4R	1.078	18	6	2	0	0	0	69	0.4
MSR186-3P	1.071	16	5	1	1	0	0	70	0.4
W6703-1Y	1.087	14	9	2	1	0	0	54	0.6
ADAPTATION TRIAL, TABLESTOCK LINES (continued)									
Alegria	1.083	12	11	3	0	0	0	46	0.7
Smiley	1.080	11	11	3	0	0	0	44	0.7
MSS576-5SPL	1.082	12	6	6	1	0	0	48	0.8
MSQ086-3	1.087	7	11	7	0	0	0	28	1.0
MST500-1	1.075	7	10	8	0	0	0	28	1.0
MSL211-3	1.081	7	10	6	1	1	0	28	1.2
MSS176-1	1.085	6	8	8	2	1	0	24	1.4
MSS206-2	1.083	4	8	9	2	1	0	17	1.5
Reba	1.084	2	7	6	9	2	0	8	2.1
MSS487-2	1.085	2	6	1	7	4	5	8	2.8

Table 11

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2014 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
		0	1	2	3	4	5+		
PRELIMINARY TRIAL, CHIP-PROCESSING LINES									
MSV344-2	1.077	13	11	0	0	0	0	54	0.5
MST202-5	1.083	14	8	2	0	0	0	58	0.5
MST096-2Y	1.085	11	13	1	0	0	0	44	0.6
MSV434-1Y	1.075	11	8	4	0	0	0	48	0.7
MSV358-3	1.093	8	9	7	1	0	0	32	1.0
MSV307-2	1.085	7	10	5	2	1	0	28	1.2
QSMSU08-04	1.085	10	5	5	5	0	0	40	1.2
MST443-1Y	1.086	6	10	5	3	0	0	25	1.2
MSV440-6	1.076	4	12	8	1	0	0	16	1.2
QSMSU10-02	1.081	5	10	6	4	0	0	20	1.4
MSV507-198	1.089	5	8	7	4	0	0	21	1.4
MSV507-140	1.095	5	10	4	5	1	0	20	1.5
MST178-2	1.074	6	10	5	0	2	2	24	1.5
QSMSU10-15	1.100	3	12	4	5	1	0	12	1.6
MSV394-3	1.091	6	7	6	3	2	1	24	1.6
MSV301-2	1.093	3	8	7	4	1	0	13	1.7
MSV507-121	1.097	6	6	3	7	2	0	25	1.7
MST191-2Y	1.092	4	8	8	1	4	0	16	1.7
QSMSU01-10	1.098	5	6	6	3	1	2	22	1.8
MSS108-1	1.084	8	3	5	5	3	1	32	1.8
Dakota Diamond	1.093	3	4	10	5	2	1	12	2.1
MSS167-6	1.087	3	5	5	11	1	0	12	2.1
MSV507-003	1.103	1	6	10	3	4	0	4	2.1
MSV507-056	1.098	4	3	6	7	4	0	17	2.2
MSV507-040	1.093	2	3	8	9	1	2	8	2.4
Beacon Chipper	1.092	2	5	6	7	5	1	8	2.4
MSV396-4	1.091	3	2	8	5	7	0	12	2.4
MST441-1	1.084	0	1	7	4	0	1	0	2.5
Snowden	1.099	1	5	5	6	2	3	5	2.5
MSV507-052	1.088	2	5	5	7	1	5	8	2.6
MSV030-4	1.099	1	3	8	8	1	4	4	2.7
PRELIMINARY TRIAL, CHIP-PROCESSING LINES (continued)									
NYJ15-7	1.096	3	5	4	3	5	5	12	2.7
MSV498-1	1.089	2	2	8	2	5	4	9	2.8
MSV505-2	1.092	2	0	7	10	4	2	8	2.8
MSV380-1	1.091	0	2	8	9	4	2	0	2.8
MSV507-073	1.101	0	4	8	5	3	5	0	2.9
MSV507-020	1.101	0	5	5	6	5	4	0	2.9
MSV507-001	1.092	3	2	5	3	7	5	12	3.0
MSU358-2	1.096	1	3	5	4	7	5	4	3.1
MST458-4	1.082	0	1	2	4	4	2	0	3.3
MSV033-1	1.090	0	3	4	4	9	5	0	3.4
Pike	1.097	0	0	6	5	7	7	0	3.6
MST424-6	1.084	0	1	3	7	4	9	0	3.7
MSV507-012	1.099	0	0	4	6	7	7	0	3.7
MST184-3	1.093	0	1	1	7	9	6	0	3.8
Atlantic	1.088	0	0	1	4	4	4	0	3.8
NY154 (H15-17)	1.097	0	0	1	3	9	11	0	4.3
MSV507-129	1.106	0	1	0	2	6	16	0	4.4
PRELIMINARY TRIAL, TABLESTOCK LINES									
MSW239-3SPL	1.066	24	1	0	0	0	0	96	0.0
MSV111-1	1.084	22	2	0	0	0	0	92	0.1
Granola	1.074	21	3	1	0	0	0	84	0.2
MSU202-1P	1.075	19	6	0	0	0	0	76	0.2

Table 11

2014 BLACKSPOT BRUISE SUSCEPTIBILITY TEST
SIMULATED BRUISE SAMPLES*

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%) BRUISE FREE	AVERAGE SPOTS/TUBER
		0	1	2	3	4	5+		
MSS164-1	1.093	15	5	4	1	1	0	58	0.8
Purple Haze	1.089	8	14	3	0	0	0	32	0.8
MST252-1Y	1.076	11	7	6	1	0	0	44	0.9
MSV235-2PY	1.082	8	13	3	1	0	0	32	0.9
MPS 1	1.074	9	11	3	2	0	0	36	0.9
MST145-2	1.085	6	9	10	0	0	0	24	1.2
MST386-1P	1.085	7	10	5	3	0	0	28	1.2
Onaway	1.074	3	8	5	8	0	0	13	1.8
MSU161-1	1.083	4	5	6	9	1	0	16	1.9
MST148-3	1.086	1	9	7	4	1	2	4	2.0
Reba	1.084	0	1	14	6	4	0	0	2.5
USPB/SFA TRIAL CHECK SAMPLES (Not bruised)									
AF4157-6	1.079	15	9	1	0	0	0	60	0.4
W5955-1	1.080	15	7	2	0	0	0	63	0.5
AC01151-5W	1.072	13	10	2	0	0	0	52	0.6
A01143-3C	1.080	12	12	2	0	0	0	46	0.6
A00188-3C	1.084	10	10	5	0	0	0	40	0.8
CO02321-4W	1.077	7	12	5	2	0	0	27	1.1
CO03243-3W	1.076	6	11	5	2	1	0	24	1.2
USPB/SFA TRIAL CHECK SAMPLES (Not bruised, continued)									
W6609-3	1.079	4	12	8	1	1	0	15	1.3
Atlantic	1.087	4	10	8	2	1	0	16	1.4
Snowden	1.079	5	7	8	5	0	0	20	1.5
CO02024-9W	1.077	1	7	12	4	0	1	4	1.9
MSL007-B	1.082	3	5	10	3	3	1	12	2.0
USPB/SFA TRIAL BRUISE SAMPLES									
AF4157-6	1.079	13	7	5	0	0	0	52	0.7
W5955-1	1.080	10	12	3	0	0	0	40	0.7
A01143-3C	1.080	11	10	3	0	1	0	44	0.8
A00188-3C	1.084	9	11	6	0	0	0	35	0.9
CO02321-4W	1.077	7	11	7	0	0	0	28	1.0
AC01151-5W	1.072	8	8	8	1	0	0	32	1.1
CO03243-3W	1.076	9	5	6	2	2	0	38	1.3
Snowden	1.079	4	7	8	6	0	0	16	1.6
W6609-3	1.079	3	10	7	3	2	0	12	1.6
Atlantic	1.087	1	7	9	4	4	0	4	2.1
CO02024-9W	1.077	4	3	10	2	5	1	16	2.2
MSL007-B	1.082	3	4	7	7	1	3	12	2.3

* Twenty to 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 10/29-30/2014. The table is presented in ascending order of average number of spots per tuber.