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2015 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 2015, we tested over 270 varieties and breeding lines in the replicated variety trials, plus over 170 lines in the National Chip Processing Trial (NCPT). 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. We added a trial to focus on specialty market classes. 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.

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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 in a four-year rotation 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 chip and tablestock trials, representing selections at a stage after the preliminary trials. The other field trials

were the North Central, Russet, , Preliminary (chip-processors and tablestock), Preliminary Pigmented, Select Scab-Resistant MSZ-Lines, the NCPT and the early observational trials.

There were significant rains at the Montcalm Research Center in 2015 in the spring and the fall that flooding effected many plots, resulting in the loss of one or more replicate plots in various trials. The Preliminary Trials were some of the most effected, resulting in many single observation plots.

2015 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 9 trial locations (Northern sites: NY, MI, WI, ND, OR and Southern: NC, FL, CA, TX) in addition to a scab trial in MN. For 2016, the scab trial will be conducted in Wisconsin instead of Minnesota.

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, chip-processing, 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) for 2 minutes 15 seconds or until fully cooked. The chip color was measured visually with the SFA 1-5 color chart and a Hunter Colorimeter using crushed chips. 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 April. 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 Center. There has been very strong scab disease pressure at the new Montcalm Scab Disease Nursery for five years now. The 2015 late blight trial was 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)

A summary of the 33 entries evaluated in the trial results is given in **Table 1**. Overall, the yields for the Advanced trial (131 days) were average to above. The check varieties for this trial were Snowden, Atlantic, and FL1879. The highest yielding lines were NY154, MSV313-2, A01143-3C, and MSR127-2. Vascular discoloration and hollow heart were the predominant internal defects. Specific gravity was high with most 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 good scab resistance, including: MSR127-2, MSW509-5, MSW474-1, MSW394-1, and

MSV383-B, MSR061-1 (late blight and PVY resistant), MSX398-2, MSX540-4 (late blight and PVY resistant), and MSW360-18 (PVY resistant) showed resistance to late blight at the CRC trials. The promising MSU chip-processing lines are MSR127-2, MSV313-2, MSX540-4, MSV507-056, MSW509-5, and MSW474-1. MSR061-1 is being named Saginaw Chipper and is finding production in the Pacific Northwest.

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 entries were tested in Michigan in 2015. The results are presented in **Table 2**. The reference varieties for this trial were Red Norland, Dark Red Norland, Red LaSoda, and Yukon Gold. The best performing MSU lines in the trial were MSV093-1Y, MST386-1P, and MSS576-5SPL. MSV093-1Y is a yellow-flesh tablestock line with high yield potential as seen in this trial and in on-farm trials. MSV093-1Y produces a high percentage of oversize tubers that with no internal defects moderate scab tolerance. Certified seed for this line is being produced in the greenhouse for larger commercial testing. Other MSU lines that looked promising were MSS576-5SPL (late blight resistant), MST386-1P (purple skin, white flesh, scab resistant) and MSX540-4 (scab and PVY resistant chipper). There are some promising red/purple-skinned entries from Minnesota, North Dakota, and Wisconsin. Yukon Gold had the highest incidence of internal defects with 70% hollow heart.

C. Russet Trial (Table 3)

We continue to increase our russet breeding efforts to reflect the growing interest in russet types in Michigan. In 2015, 20 lines were evaluated after 120 days. The results are summarized in **Table 3**. The Russet trial includes entries from the North Central Regional Trial (NCR). 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 low yield. The highest yielding line was W10074-8Rus, however, it had 50% hollow heart. Reveille Russet (ATX91137-1Rus) and W94111-1Rus (NCR) were also high yielding this year and in 2014. There was incidence of hollow heart in W10074-8Rus, AW07791-2Rus, CO5068-1Rus, and MSW496-1Rus. Specific gravity measurements were average with Russet Norkotah at 1.072. Off type and cull tubers were found in nearly all lines tested, with the highest being W9742-3Rus and ND7882b-7Rus (NCR). Scab resistance was common among the lines but susceptibility was observed in a number of the russet lines. No late blight resistance was observed in these lines at the CRC trial.

D. Adaptation Trial (Table 4)

The Adaptation Trial of the tablestock lines was harvested after 123 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. Three reference cultivars (Reba, Red Norland, and Superior) and 20 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 (MSW121-5R and Reba). The highest yielding lines were MSV093-1, MSW121-5R, MSW259-5, and MSW151-05. MSV093-1Y is an attractive yellow-fleshed table selection high yield potential and moderate scab tolerance. The challenge remains to combine scab and late blight resistance together. The lines with scab tolerance were MSV093-1Y, MSS576-5SPL, MSW075-1, MST252-1Y, MSW324-1P, and McBride. Other promising late blight resistant lines were MSW121-5R, MSW151-05, MSS576-5SPL, MSV396-4Y and MSV235-2PY. Although the yield was low in this trial, MSV235-2PY is an attractive specialty line with purple skin and a yellow flesh for the small potato market and has excellent late blight resistance. This line is being tested by Tasteful Selections.

E. Preliminary Trials (Tables 5, 6, 7, and 8)

The Preliminary trials (chip, table, pigmented, scab resistant Z-selections) are the first replicated trials 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. In 2015, there were 159 lines trialed in the three Preliminary trials.

The chip-processing Preliminary Trial (**Table 5**) had 68 entries was harvested after 123 days. Most lines chip-processed well from the field. Specific gravity values were average to high with Atlantic at 1.089 and Snowden at 1.084. Internal quality was predominantly hollow heart and vascular discoloration. Internal defects were lower than some years, with no hollow heart observed in Atlantic or Snowden. Promising MSU lines are MSX542-2, MST186-1Y, MSY008-3, MSX198-5, and MSX245-2Y combining yield, specific gravity, and chip quality. We continue to make progress selecting for chip-processing with scab resistance with 20 lines in the trial with scab ratings lower than Pike (1.5). We are also combing chip-processing quality and late blight resistance, with 9 selections demonstrating strong foliar late blight resistance, and 7 lines with moderate late blight resistance.

Table 6 summarizes 69 tablestock entries evaluated in the Preliminary Tablestock Trial. Reba and Superior were the check varieties. This tablestock trial was harvested and evaluated after 120 days. MSY111-1, QSMSU08-04, Soroya, VC1009-1W/Y, MSX156-1Y and MSV502-5 were the highest yielding lines. MSY111-1 combines high yield potential with scab resistance and good internal quality. This trial also had a low incidence of internal defects. The number of tablestock selections with scab resistance (21) and late blight resistance (13) continue to increase.

The interest in the specialty market continues to increase. A new trial was created to test 22 entries in a targeted Preliminary Pigmented Trial (**Table 7**), which was harvested at 123 days. This trial evaluated breeding lines with unique skin and flesh colors. These lines have commercial agronomic performance and specialty

characteristics, as well as some scab and late blight resistances. The highest yielding lines were MSX517-3SPL (late blight resistant), Michigan Purple Sport I, MSZUNK-7, Dakota Ruby, and MSX507-1R (late blight resistant). Seven of the 22 lines also demonstrated scab resistance in the scab disease nursery.

A separate trial was conducted to evaluate select 'MSZ' chip-processing selections that were confirmed to be scab resistant over multiple years in on-farm testing under heavy scab disease pressure (**Table 8**). The trial had 47 entries, with Atlantic and Snowden as the reference varieties. The scab resistance in these clones have been evaluated on-farm. These selections combine agronomic performance, chip-processing quality, specific gravity, and scab resistance. There are over a dozen lines which have commercial promise and these lines were placed into tissue culture. The lines that are virus free are being seed increased. These include MSZ222-19 and three lines that also have PVY and late blight resistance: MSZ219-1, MSZ219-14 and MSZ219-46.

F. Potato Common Scab Evaluation (Tables 9 and 10)

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 five years. This location is being used for the early generation observational scab trial (479 lines) and the scab variety trial (230 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 2012-2014 scab ratings are based upon the Montcalm Research Center site. **Table 9** categorizes many of the varieties and advanced selections tested in 2015 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 9**). The table is sorted in ascending order by 2015 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 71 lines, of the 230 tested, had a scab rating of 1.5 or lower in 2015. Most notable scab resistant MSU lines are MST386-1P, MSV092-2, MSX324-2R, MSX324-1P, MSU358-3, MSZ219-01, McBride, MSR061-1, MSR127-2, MSV301-2, 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.

Scab results from the disease nursery for the advanced selections are also found in the Trial Summaries (**Tables 1-8**).

There are also an increasing number of scab resistant lines that also have late blight resistance and PVY resistance such as MSR061-1, MSX540-4 and MSZ219-14. We also continue to conduct early generation scab screening on selections in the breeding program beginning after two years of selection. Of the 479 early generation selections that were evaluated, over 267 had scab resistance (scab rating of ≤ 1.5) (**Table 10**).

H. Late Blight Trial (Tables 11 and 12)

In 2015, 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 (153 lines) and 114 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 2015 the replicated variety trial 62 lines had late blight resistance, while 41 lines in the early generation observation plots had 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.). Most notable lines with late blight resistance include MSR061-1, MSX540-4, MSZ219-01, MSZ219-14, MSS576-05SPL, MSW485-2, MSW121-2R and MSV235-2PY. **Tables 11 and 12** 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 13)

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

the bruise levels can vary between trials. In 2015 the bruise levels were higher than previous years. There are many lines with lower blackspot bruise potential across the trials. Some of our advanced selections are similar to Atlantic and Snowden in their level of bruising.

J. National Chip Processing Trial (NCPT) data available on-line

The United States Potato Board (USPB)-funded National Chip Processing Trial (NCPT) is an effort to synergize the strengths of the public breeding programs in the U.S. to identify improved chip-processing varieties for the industry. Cooperating breeding programs include the USDA (Idaho and Maryland) and land grant universities (Colorado, Maine, Michigan, Minnesota, North Carolina, North Dakota, New York, Oregon, Wisconsin and Texas). The coordinated breeding effort includes early stage evaluation of key traits (yield, specific gravity, chip color, chip defects and shape) from coordinated trials in 11 locations. Since the inception of the trial in 2010, over 900 different potato entries, including reference varieties, have been evaluated. The data for all the lines tested are summarized on a searchable, centralized database housed at North Carolina State University. More than 30 promising new breeding lines from the trials have been fast-tracked for larger-scale commercial trials and processor evaluation. The NCPT is also a feeder for the national USPB/Snack Food Association trials. The data from all trials are available in a searchable, on-line database (<https://potatoes.ncsu.edu/ncptrch.php>). We are using the NCPT trials to more effectively identify promising new selections. These are MSV301-2, MSV358-3, MSW485-2, MSW509-5, MSV030-4 and MSX540-4. Minituber production and/or commercial seed have been produced of these lines and will be tested in Michigan in 2015.

Table 1

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICSADVANCED CHIP-PROCESSING TRIAL
MONTCALM RESEARCH FARM
May 14 to September 22, 2015 (131 days)
DD Base 40°F 3130⁸

LINE	N	CWT/A		PERCENT OF TOTAL ¹						CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴					SCAB ⁵	MAT ⁶	BRUISE ⁷	LB	3-YR AVG
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR			HH	VD	IBS	BC	RAUDPC				US#1	
NY154	4	472	498	95	6	88	7	0	1.087	1.0	0.0	0	18	0	0	1.8	3.3	1.4	9.7	-	
MSV313-2	3	452	461	98	1	53	45	1	1.082	1.0	1.0	0	13	0	0	-	4.0	2.2	-	-	
A01143-3C	3	399	450	89	9	86	3	2	1.080	1.0	0.0	7	10	0	0	1.1	3.3	0.9	19.0	-	
MSR127-2	4	380	402	95	5	72	23	1	1.084	1.0	0.0	3	8	0	0	1.3	3.8	1.7	-	395	
CO02343-3W	4	371	395	94	6	62	32	1	1.076	1.0	2.0	3	5	0	0	2.5	3.3	1.0	22.9	-	
Atlantic	4	367	409	90	7	78	12	3	1.092	1.0	2.0	20	10	0	3	2.8	2.5	2.2	25.9	303	
MSV507-056	3	362	380	95	4	78	17	1	1.091	1.0	0.0	30	10	0	3	2.1	3.7	1.4	-	-	
MSW509-5	3	362	399	90	9	75	16	1	1.082	1.5	4.0	0	43	0	0	1.4	2.7	0.8	19.6	-	
MSV033-01	3	361	395	91	5	57	35	3	1.077	1.0	0.0	13	30	0	0	1.9	3.3	1.0	-	-	
NY157	4	339	387	88	12	83	5	0	1.084	1.0	0.0	0	10	0	0	2.1	2.8	0.6	23.5	-	
MSW474-01	3	331	424	78	22	77	1	0	1.085	1.0	1.0	0	3	0	0	1.0	3.0	2.0	-	-	
AF4975-3	4	327	364	90	9	74	16	2	1.083	1.0	1.0	10	8	0	0	2.3	2.8	0.3	23.4	-	
MSX398-2	3	325	342	95	5	81	13	0	1.078	1.0	1.0	0	7	7	0	2.0	3.0	0.8	0.2	-	
MSR061-1	4	321	356	90	11	81	9	0	1.085	1.5	2.0	3	25	0	0	2.0	2.3	2.1	3.6	287	
MSW394-1	4	320	349	91	8	84	7	1	1.077	1.0	1.0	0	25	0	0	1.5	2.5	1.5	10.8	-	
MSV030-4	4	314	345	91	8	75	17	1	1.089	1.0	2.0	0	20	0	0	1.6	2.8	1.5	-	-	
W5955-1	4	313	356	88	11	78	10	1	1.084	1.5	0.0	3	15	0	3	1.5	2.8	0.2	20.3	330*	
AF4648-2	3	307	332	92	8	84	8	0	1.086	1.0	0.0	13	7	0	0	0.9	2.7	0.8	10.2	-	
FL1879	4	304	318	95	5	80	15	0	1.081	1.5	0.0	8	18	0	0	2.5	2.0	0.8	-	330	
NYK28-18	4	299	352	85	16	84	0	0	1.096	1.0	0.0	0	8	0	0	2.9	2.0	1.2	23.8	-	
MSX540-4	4	296	326	91	5	72	19	4	1.088	1.0	1.0	0	33	0	3	2.0	3.8	2.8	4.6	-	
Lamoka	3	295	321	92	7	85	7	1	1.084	1.0	0.0	0	10	0	0	1.8	2.7	0.6	21.4	299	
Snowden	3	292	353	83	15	77	6	2	1.087	1.0	1.0	0	27	0	0	2.8	2.3	1.6	18.0	275	
MSV358-3	3	291	341	85	8	73	12	6	1.081	1.0	0.0	0	3	0	0	1.6	2.0	0.6	-	-	
MSV394-3	3	289	332	87	13	78	9	0	1.083	1.0	0.0	27	7	0	3	1.8	2.0	0.6	17.3	-	
MSV393-1	3	269	332	81	19	80	1	0	1.082	1.0	1.0	7	7	0	0	1.8	3.3	0.9	20.0	-	
MSV380-1	3	263	291	90	10	87	3	0	1.084	1.0	0.0	0	17	0	0	1.3	3.0	0.5	-	-	
MSW163-03	2	258	273	94	3	73	22	3	1.079	-	-	5	0	5	0	1.4	3.0	-	18.9	-	
MSV383-B	3	257	295	87	12	83	4	1	1.095	1.0	0.0	3	0	0	0	1.1	1.0	0.8	-	-	
AF5320-1	3	246	314	78	19	74	4	3	1.081	1.0	0.0	7	23	0	0	1.1	2.3	0.2	23.2	-	
MSW505-2	3	224	274	82	8	73	9	10	1.086	1.0	0.0	0	17	3	0	1.4	2.0	1.2	23.6	-	
MSV440-6	3	122	152	57	43	55	2	0	1.066	2.0	0.0	0	3	0	0	2.1	2.0	-	-	-	
MSW360-18	3	119	159	31	69	27	3	0	1.075	1.5	1.0	0	10	0	0	3.1	3.0	-	6	-	
MEAN		310	348						1.083							1.8	2.7	1.1	16.6	315	
HSD _{0.05}		135	131						0.006							1.4			10.8		

* 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: August 28, 2015; 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.⁸Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

Table 2

NORTH CENTRAL REGIONAL TRIAL
MONTCALM RESEARCH FARM
May 14 to September 11, 2015 (120 days)
DD Base 40°F 3130⁶

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	Bruise ⁵	LB	3-YR AVG
		US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC				RAUDPC	US#1
															x100	CWT/A		
ND113300-3RSY	1	569	667	85	9	70	15	6	1.075	0	0	0	0	-	3.0	1.2	-	-
MSV093-1	1	437	467	94	4	62	32	2	1.076	0	0	0	0	1.7	3.0	0.4	16.9	-
Red LaSoda	1	427	480	89	3	65	24	8	1.065	30	0	0	0	-	2.0	0.1	-	402*
MST386-1P	1	416	478	87	1	36	51	12	1.085	0	0	0	0	0.6	3.0	1.0	18.4	-
ND6961B-21PY	1	397	439	91	9	89	2	0	1.081	0	0	0	0	-	3.0	0.3	0.0	-
MSS576-5SPL	1	355	389	91	4	60	31	5	1.071	0	0	0	0	1.8	2.0	0.3	7.0	360
MN10003PLWR-06R	2	353	388	91	6	76	15	3	1.065	0	0	0	0	-	2.5	0.1	23.9	379*
Red Norland	1	350	363	96	4	80	16	0	1.062	10	10	0	0	-	2.0	0.1	25.5	285
MSX540-4 ^{PVYR}	1	336	397	85	10	79	5	6	1.090	0	0	0	0	2.0	3.0	2.0	4.6	325*
W10209-2R	1	329	401	82	18	79	3	0	1.070	0	0	0	0	-	1.0	0.4	21.6	-
Dark Red Norland	1	329	374	88	11	80	8	1	1.063	10	0	0	0	-	1.0	0.2	-	-
MSV235-2PY	1	328	395	83	16	83	0	1	1.077	0	0	0	0	2.6	1.0	0.2	0	-
Yukon Gold	1	327	345	95	4	66	28	1	1.078	70	30	0	0	-	1.0	0.5	-	296*
ND7834-2P	1	322	362	89	10	89	0	1	1.076	0	0	0	0	-	1.0	0.0	-	-
MSW343-2R	2	316	337	94	6	84	10	0	1.059	0	5	0	0	-	1.5	0.1	-	-
ND7982-1R	1	275	387	71	26	71	0	3	1.073	0	0	0	0	-	1.0	0.6	-	-
W9432-4R	2	268	347	77	17	63	14	5	1.051	0	0	0	0	-	1.5	0.2	-	-
W10114-3R	1	254	297	85	8	45	40	7	1.058	0	0	10	0	-	3.0	0.1	-	-
MSX324-1P	1	242	313	77	20	74	3	3	1.083	0	0	0	0	1.1	1.0	0.6	19.2	-
ND7818-1Y	1	237	294	81	17	81	0	2	1.069	0	30	0	0	-	1.0	0.1	21.9	-
MEAN		343	396						1.071					1.6	1.9	0.4	14.5	322
HSD _{0.05}		NS	NS						0.025					1.4			10.8	

* 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: August 28, 2015; 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.

Plant Date: 5/14/14

Vine Kill: 9/10/14

Days from planting to vine kill: 119

⁶Enviroweather: Entrican Station. Planting to vine kill

Table 3

RUSSET TRIAL
MONTCALM RESEARCH FARM
May 14 to September 11, 2015 (120 days)
DD Base 40°F 3130⁶

LINE	N	CWT/A		PERCENT OF TOTAL ¹						PERCENT (%) TUBER QUALITY ²					MAT ⁴	BRUISE ⁵	LB RAUDPC x100	3-YR AVG US#1 CWT/A
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB ³				
W10074-8rus (NCR)	1	514	570	90	7	73	18	3	1.090	50	0	0	0	-	3.0	1.6	-	-
ATX91137-1Rus (Reveille Russet)	2	418	451	93	6	57	35	1	1.069	0	35	0	0	1.6	2.0	0.4	21.0	409*
W9433-1Rus	1	377	406	93	4	55	38	3	1.077	0	10	0	0	1.9	3.0	0.6	19.0	354*
W10043-1rus (NCR)	1	364	397	92	5	64	28	3	1.078	10	0	0	0	-	2.0	0.3	-	-
W9519-3Rus	1	354	388	91	9	86	5	0	1.069	0	10	0	0	1.1	2.0	-	22.0	-
ND7882b-7Russ (NCR)	1	338	451	75	9	39	36	17	1.076	0	0	0	0	-	2.0	0.8	15.4	275*
CW08071-2Rus	2	322	400	80	15	75	5	4	1.078	0	15	0	0	2.1	2.0	1.7	18.0	-
AW07791-2Rus	2	316	389	81	11	60	21	7	1.087	50	0	10	0	2.3	3.5	1.0	12.0	-
A01010-1 (Targhee Russet)	2	314	372	84	14	78	6	2	1.076	0	15	0	0	1.3	3.0	0.3	19.0	-
Silverton Russet	2	291	310	94	6	77	17	0	1.070	0	40	0.0	0.0	0.9	2.0	0.4	23.0	340
MSY573-3Rus	2	277	346	80	12	54	26	8	1.065	5	15	0	0	0.6	2.0	0.2	-	-
Russet Norkotah (NCR)	1	274	323	85	15	61	24	0	1.072	10	0	10	0	-	2.0	0.1	21.9	-
CO5068-1Rus	2	269	291	92	7	72	20	1	1.087	55	0	25.0	5.0	1.3	3.0	1.7	14.0	-
AFW5465-2rus (NCR)	1	263	318	83	8	60	23	9	1.067	0	0	0	0	-	2.0	0.8	-	-
AF3362-1Rus (Caribou Russet)	2	255	279	91	7	72	20	2	1.075	0	15	0.0	0.0	1.3	2.0	0.6	21.0	328*
AFW5472-1rus (NCR)	1	239	336	71	19	64	7	10	1.068	0	0	0	0	-	1.0	0.1	-	-
W9742-3Rus	2	226	316	72	6	55	18	22	1.096	5	30	0	0	2.0	2.0	-	19.0	-
MSW496-1Rus	2	213	269	80	10	51	29	10	1.068	30	10	0.0	0.0	2.0	4.0	1.2	-	-
Russet Norkotah	2	170	259	65	35	63	2	0	1.070	0	25	0	0	2.1	1.0	0.3	22.0	161
ND8068-5Rus	2	113	197	57	30	57	0	13	1.077	0	30	0	0	2.9	1.0	1.2	26.0	-
MEAN		295	353						1.076					1.7	2.2	0.7	19.5	250
HSD _{0.05}		225	248						0.012					1.4			10.8	

* 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 28, 2015; 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.

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

⁶Enviroweather: Entrican Station. Planting to vine kill

Table 4

ADAPTATION TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 14 to September 14, 2015 (123 days)
DD Base 40°F 3130⁶

LINE	CWT/A		PERCENT OF TOTAL ¹						PERCENT (%) TUBER QUALITY ²					SCAB ³	MAT ⁴	BRUISE ⁵	LB
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	RAUDPC				
MSV093-1Y	3	491	533	92	7	76	16	1	1.073	3	0	0	3	1.7	3.0	0.4	16.9
MSW121-5R	1	430	467	92	8	82	10	0	1.068	40	30	30	0	2.6	3.0	nd	1.7
MSW259-5	3	429	447	96	4	71	25	0	1.079	17	7	3	0	2.5	3.0	1.1	14.6
MSW151-05	3	354	399	89	4	60	29	7	1.067	0	10	0	0	2.5	3.0	1.1	6.1
Reba	3	353	371	95	5	71	24	0	1.074	20	7	0	0	2.1	2.7	1.4	21.4
MSS576-5SPL	3	336	359	93	3	66	27	3	1.070	0	3	0	0	1.8	2.7	0.6	7.0
MSW239-03SPL	3	323	365	89	8	79	9	3	1.056	0	0	0	0	2.3	1.3	0.2	-
MSV179-1	3	321	338	95	3	59	36	1	1.060	0	7	0	0	1.9	2.7	0.5	23.3
Red Norland	3	318	361	88	11	86	2	0	1.063	3	0	0	0	1.5	1.0	0.5	25.5
MSW134-1	4	311	376	83	17	81	2	0	1.072	3	5	0	0	2.2	2.0	2.6	22.8
MSV434-1Y	3	297	336	88	11	77	11	1	1.073	7	3	7	0	1.9	2.7	1.1	-
Molli	3	297	381	78	17	75	3	5	1.068	0	20	0	0	2.3	2.0	0.9	18.0
Oneida Gold	3	294	333	88	12	87	1	0	1.079	0	3	0	0	1.8	2.3	0.8	19.2
MSW299-2	3	287	330	87	13	82	4	0	1.072	0	3	0	0	2.3	2.7	0.6	13.4
MSW075-1	3	280	368	76	24	76	1	0	1.081	0	17	0	0	1.6	2.3	1.4	-
Spartan Splash	4	272	313	87	13	81	6	1	1.072	0	10	0	0	2.0	1.5	0.7	-
MSV396-4Y	1	254	364	70	30	70	0	0	1.078	0	10	0	0	1.8	3.0	nd	9.4
Superior	3	248	271	91	8	88	3	1	1.070	0	3	0	3	1.6	1.0	1.0	-
MST252-1Y	3	245	320	76	16	68	8	8	1.069	0	17	0	7	1.5	1.3	0.7	-
McBride	4	239	276	87	12	77	10	1	1.080	3	8	0	0	1.1	2.0	0.4	-
MSX526-1	3	238	317	75	24	75	0	1	1.080	0	13	0	3	1.3	2.3	0.2	20.3
MSX324-1P	4	230	285	80	20	79	1	0	1.079	0	3	0	0	1.1	1.0	1.8	19.2
MSV235-2PY	3	189	262	72	23	72	0	5	1.075	0	10	0	0	2.6	1.0	2.3	0.0
MEAN		306	355						1.072					1.9	2.2	1.0	14.9
HSD _{0.05}		108	110						0.007					1.4			10.8

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 28, 2015; 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.

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

⁶Enviroweather: Entrican Station. Planting to vine kill

Table 5

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICSPRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 14 to September 14, 2015 (123 days)
DD Base 40°F 3130⁸

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴				SCAB ⁵	MAT ⁶	BRUISE ⁷	LB RAUDPC x100
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC				
MSX542-2	1	535	544	98	2	72	27	0.0	1.085	1.0	3.0	0	30	0	0	1.9	4.0	1.0	7.9
Dakota Diamond	1	504	516	98	2	69	28	0.0	1.084	1.5	3.0	20	10	0	0	2.1	3.0	1.0	-
MSV507-129	1	471	494	95	5	80	15	0.0	1.093	1.5	0.0	90	0	0	0	1.3	4.0	4.2	-
MST186-1Y	1	467	486	96	4	87	9	0.0	1.083	1.5	1.0	20	0	0	0	1.3	3.0	1.2	-
MSY008-3	2	455	490	93	8	84	10	0.0	1.079	1.5	1.0	0	5	0	0	1.5	3.5	0.9	14.7
Beacon Chipper	1	452	469	96	3	68	28	1.0	1.078	1.5	0.0	0	10	0	0	2.4	3.0	1.3	-
MSX198-5	1	445	474	94	5	79	15	1.0	1.079	1.0	3.0	0	20	0	0	2.5	2.5	0.3	0.5
MSX245-2Y	1	440	469	94	6	80	14	0.0	1.086	1.5	2.0	0	20	0	0	1.6	3.5	1.4	-
MSX196-1	1	432	437	99	1	68	31	1.0	1.072	1.5	1.0	0	0	0	0	1.4	3.0	0.4	15.0
MSY022-2	2	426	451	95	4	49	46	1.5	1.077	2.0	2.0	0	5	0	0	1.9	3.0	1.0	15.5
MSW399-2	1	413	478	86	14	84	3	0.0	1.087	1.5	2.0	0	10	0	0	1.9	4.0	2.3	9.2
MSZ280-7	1	383	392	98	2	70	28	0.0	1.078	1.5	2.0	90	0	0	0	1.8	2.0	1.3	-
MSZ222-19	1	370	402	92	8	80	12	0.0	1.091	1.0	1.0	10	0	0	0	1.3	2.5	0.8	-
MSZ057-5	1	368	391	94	6	67	27	0.0	1.075	-	-	30	0	0	0	2.6	3.0	-	8.6
MSX129-1	1	365	378	97	3	62	34	0.0	1.085	1.5	1.0	0	10	0	0	1.6	4.0	1.2	-
MSZ194-2	1	362	387	94	4	76	18	3.0	1.087	1.5	1.0	0	10	0	0	2.3	3.0	0.4	22.8
MSZ452-1	1	353	391	91	9	74	16	0.0	1.095	2.0	2.0	0	30	10	0	2.3	3.0	0.7	14.7
Atlantic	1	349	372	94	6	88	6	0.0	1.089	1.5	3.0	0	20	0	0	2.8	2.5	1.0	25.9
MSZ407-2Y	2	346	388	89	11	78	11	0.0	1.074	1.0	0.0	0	5	0	0	1.0	2.5	0.9	20.9
MSZ300-1	1	337	400	84	6	66	19	10.0	1.085	1.5	2.0	60	20	0	0	2.0	3.0	1.1	20.3
MSW064-1	1	328	346	95	5	90	5	0.0	1.082	1.5	1.0	0	0	0	0	1.4	4.0	1.2	9.2
MSX472-1	1	327	362	90	10	90	0	0.0	1.089	1.5	0.0	0	10	0	0	-	3.0	0.8	-
MSW464-3	1	319	330	97	3	84	13	0.0	1.082	1.5	1.0	0	0	0	0	1.9	3.5	0.5	0.3
MSW537-6	1	314	337	93	5	69	25	2.0	1.095	1.5	2.0	0	0	0	0	1.6	4.0	2.8	15.7
MSW248-02	1	312	340	92	6	62	29	3.0	1.087	1.5	1.0	10	0	0	10	2.0	3.5	0.4	-
MSX156-2	1	309	365	85	15	78	6	0.0	1.071	-	-	0	0	0	0	-	3.0	0.5	-
MSU383-A	2	306	334	93	7	77	15	1.5	1.074	1.0	4.0	20	40	5	0	1.1	2.0	1.1	20.3
MSW168-2	1	305	327	93	6	81	12	1.0	1.089	1.5	3.0	0	20	0	0	2.0	4.0	1.8	15.9
MSZ219-01	1	302	323	93	7	84	9	0.0	1.074	1.5	2.0	20	0	0	0	1.1	3.0	0.6	9.2
MSV335-1	1	300	318	94	6	69	25	0.0	1.077	1.0	0.0	10	10	0	0	1.8	2.0	1.2	-
MSW502-4	1	298	357	84	16	84	0	0.0	1.066	-	-	0	0	0	0	1.3	3.5	-	15.9
MSV241-2	1	295	347	85	9	73	12	6.0	1.088	-	-	50	0	0	0	1.5	1.5	-	-
MSW326-6	1	293	397	74	24	70	3	2.0	1.093	1.5	2.0	0	0	0	0	2.4	3.5	1.0	19.4
MSX221-2	1	293	318	92	8	88	4	0.0	1.080	1.5	2.0	0	10	0	0	1.9	4.0	2.8	18.2
MSZ025-5	1	287	312	92	8	92	0	0.0	1.091	1.0	1.0	0	10	10	0	2.0	3.5	0.8	-
MSZ159-3	2	282	387	73	25	69	5	2.0	1.081	1.0	0.0	0	10	0	0	1.9	2.0	1.3	-
MSX417-1	1	278	314	88	12	88	0	0.0	1.086	1.5	0.0	0	0	0	0	1.6	2.5	2.0	-
MSW485-2	1	276	369	75	25	73	1	0.0	1.089	1.5	2.0	0	30	0	0	2.0	3.0	0.3	6.7
MSX225-2	1	275	307	90	10	90	0	0.0	1.085	1.5	2.0	0	10	0	0	1.0	2.5	1.7	-
MSU379-1	1	272	284	96	4	82	14	0.0	1.081	1.5	2.0	0	0	20	0	1.3	2.0	1.4	20.5
MSV507-143	1	270	304	89	5	66	23	7.0	1.088	1.0	2.0	20	0	40	0	1.3	4.0	2.0	-
MSW294-1	1	266	334	80	20	80	0	0.0	1.097	-	-	0	0	0	0	2.1	2.0	-	-
MSW044-1	2	264	365	72	25	72	0	3.0	1.092	2.0	2.0	0	10	0	0	1.5	3.0	1.5	-
MSS164-1	1	262	306	86	14	86	0	0.0	1.088	1.5	1.0	0	0	0	10	1.3	2.0	0.4	0.2

Table 5

PRELIMINARY TRIAL, CHIP-PROCESSING LINES
MONTCALM RESEARCH FARM
May 14 to September 14, 2015 (123 days)
DD Base 40°F 3130⁸

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ²	OTF SED ³	PERCENT (%) TUBER QUALITY ⁴				SCAB ⁵	MAT ⁶	BRUISE ⁷	LB RAUDPC x100
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC				
MSV284-1	1	256	293	87	10	78	9	2.0	1.078	1.5	3.0	0	0	0	0	2.1	2.5	1.0	0.0
MSV092-2	2	255	277	92	9	87	5	0.0	1.086	-	-	0	0	0	0	0.9	3.0	0.7	-
MSV246-1	2	254	281	92	7	66	25	2.0	1.088	1.0	2.0	25	15	10	0	2.4	3.0	1.3	-
MSX472-2	2	254	336	75	25	68	8	0.0	1.081	-	-	0	0	0	5	1.6	2.0	-	9.5
Snowden	1	254	308	83	17	83	0	0.0	1.084	1.0	1.0	0	10	0	0	2.8	2.5	1.6	18.0
MSW164-2	1	250	281	89	11	89	0	0.0	1.076	-	-	0	0	0	0	2.5	2.0	-	-
MSZ507-2	2	248	323	77	22	73	4	2.0	1.083	1.0	0.0	0	15	0	0	2.5	1.5	1.2	2.4
MSX420-4Y	1	242	271	89	11	89	0	0.0	1.087	1.5	0.0	0	0	0	0	2.4	1.0	0.8	-
MSV307-2	1	236	282	84	16	84	0	0.0	1.085	1.0	2.0	0	10	0	0	1.8	1.5	1.0	-
MSW502-3	1	234	242	97	3	78	19	0.0	1.079	1.0	1.0	0	10	0	0	1.6	2.5	0.7	-
Pike	1	225	266	84	12	84	0	3.0	1.089	1.0	0.0	0	0	0	0	1.5	2.5	0.8	22.5
QSMSU10-15	1	224	287	78	20	70	8	2.0	1.092	1.0	1.0	0	10	0	10	1.6	2.0	0.8	21.0
MSY193-1	1	220	260	85	15	85	0	0.0	1.087	-	-	0	0	0	0	1.5	2.5	-	-
MSX495-2	1	212	271	78	17	76	3	5.0	1.084	1.0	0.0	0	20	0	0	1.8	1.5	0.8	23.4
MSX345-6Y	1	210	229	92	8	71	21	0.0	1.088	1.5	1.0	0	30	0	0	1.9	3.0	0.6	-
MSW509-1	1	206	343	60	40	57	4	0.0	1.081	-	-	0	20	0	0	1.6	2.5	-	-
MSZ119-1	1	202	278	72	28	72	0	0.0	1.081	1.0	0.0	0	0	0	0	2.1	2.0	0.8	-
MSW324-01	1	200	291	69	31	69	0	0.0	1.090	1.5	1.0	0	10	0	0	1.8	4.0	1.2	1.0
MSW100-1	1	189	296	64	36	64	0	0.0	1.086	-	-	0	40	0	0	1.1	2.5	-	3.1
MSZ282-6	1	185	211	88	12	88	0	0.0	1.077	-	-	0	0	0	0	1.4	2.0	-	-
MSW078-1	2	165	240	69	32	69	0	0.0	1.089	-	-	0	10	0	0	-	2.5	-	0.7
MSX410-12Y	1	158	281	56	44	56	0	0.0	1.086	1.5	0.0	0	0	0	0	1.8	1.5	0.9	-
MSZ157-3	1	135	192	70	30	70	0	0.0	1.073	-	-	0	0	0	0	2.3	1.5	-	4.1
MSW182-1Y	2	104	319	31	69	31	0	0.0	1.086	-	-	0	5	25	0	2.1	2.0	-	15.1
MEAN		300	346						1.084							1.8	2.7	1.1	12.4
HSD _{0.05}		245	273						0.029							1.4			10.8

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 28, 2015; 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.

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

⁸Enviroweather: Entrican Station. Planting to vine kill

Table 6

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICSPRELIMINARY TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 14 to September 10, 2015 (120 days)
DD Base 40°F 3130⁶

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	BRUISE ⁵	LB RAUDPC x100
		US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC				
MSY111-1	1	512	535	96	4	63	33	0	1.076	0	0	10	0	1.5	3.0	0.8	-
QSMSU08-4	1	475	494	96	4	85	11	0	1.082	0	20	0	0	1.8	2.0	0.4	22.8
Soraya	2	462	513	90	7	87	4	3	1.062	0	15	0	0	1.6	2.0	0.3	21.7
VC1009-1W/Y	2	456	495	93	6	74	19	2	1.072	15	0	0	0	2.3	4.0	0.5	12.5
MSX156-1Y	1	448	476	94	3	65	29	3	1.068	0	0	0	0	2.3	3.0	0.6	-
MSV502-5	2	439	452	97	3	75	22	1	1.076	5	0	0	5	1.9	3.0	0.5	-
MSW126-1	1	439	458	96	4	70	26	0	1.078	10	10	0	0	1.5	3.0	1.0	18.9
MSW236-3	1	433	451	96	4	74	22	0	1.078	10	0	0	0	2.8	3.0	0.6	18.5
MSW125-3	2	407	444	92	5	63	29	3	1.059	5	15	0	0	1.1	1.0	0.2	20.6
MST094-1	1	402	433	93	4	81	12	3	1.080	0	60	0	0	1.6	3.0	2.0	-
A05182-7Y	1	399	450	89	11	78	10	0	1.076	0	20	0	0	-	3.0	1.3	-
MSW353-3	2	371	389	95	5	84	12	0	1.076	0	45	0	0	0.9	2.5	0.3	17.6
Maris Bard	1	363	387	94	2	78	16	4	1.070	70	40	0	0	2.6	2.0	-	21.5
Granola	1	360	479	75	21	72	3	4	1.067	0	10	0	0	1.1	4.0	0.4	14.8
QSMSU10-02	2	359	384	94	5	72	22	2	1.074	0	5	0	0	1.4	1.0	0.7	1.9
MSX506-3	1	358	388	92	8	69	23	0	1.075	0	0	0	0	1.5	2.0	0.7	19.6
MSU016-2	1	348	374	93	7	85	8	0	1.090	10	0	0	10	2.1	3.0	1.3	5.6
MSY491-2Y	1	346	399	87	13	84	3	0	1.072	0	0	0	0	1.5	2.0	0.5	5.0
MSU161-1	1	344	370	93	7	86	7	0	1.075	0	0	0	0	2.3	3.0	1.1	6.5
MSW556-1	1	343	499	69	21	69	0	10	1.073	0	0	0	0	2.4	2.0	0.4	-
MST191-2Y	1	339	379	89	11	79	10	0	1.085	0	0	0	0	2.5	3.0	0.6	-
MSV111-1	1	339	395	86	14	82	4	0	1.073	0	10	0	10	1.4	2.0	0.0	15.2
MSW042-1	1	338	400	84	16	83	1	0	1.077	0	0	0	0	2.4	3.0	0.6	1.6
MST148-3	1	336	362	93	7	73	20	0	1.077	0	0	0	0	2.5	3.0	0.5	-
MSX137-6	2	336	374	90	10	87	3	0	1.073	0	10	5	0	1.8	1.5	1.1	22.6
W9577-6Y	1	326	379	86	14	82	4	0	1.075	0	0	0	0	2.1	4.0	0.2	18.9
MST145-2	1	320	408	79	10	62	17	11	1.074	0	0	0	0	-	3.0	0.9	-
Reba	1	320	334	96	4	80	16	0	1.078	0	10	0	0	2.1	1.0	1.0	21.4
MSV397-2	1	317	343	92	4	89	4	4	1.076	0	0	0	0	1.4	2.0	1.0	19.9
MSX009-2	1	309	365	85	15	80	4	0	1.083	0	10	0	0	1.9	3.0	1.7	11.3
MSW068-4	1	303	360	84	10	83	2	5	1.074	0	0	0	0	2.8	2.0	0.4	-
MSV127-1	1	301	332	91	9	91	0	0	1.088	0	20	0	0	2.1	2.0	1.7	-
W9576-13Y	1	300	328	91	7	73	18	2	1.072	0	0	0	0	1.4	2.0	0.2	22.5
MSX172-7	1	298	363	82	18	81	2	0	1.084	0	10	0	0	1.8	3.0	1.0	-
MSY042-1	1	296	330	90	6	73	16	4	1.079	0	10	0	0	1.8	3.0	0.6	-
CalWhite	1	292	335	87	9	74	13	4	1.071	0	10	0	0	2.8	2.0	0.9	-
MSX503-5	1	290	312	93	7	90	3	0	1.075	0	10	0	0	1.0	1.0	1.1	21.7
MST441-1	1	288	343	84	16	78	6	0	1.079	0	0	0	0	1.1	1.0	0.6	-
MSW123-3	2	288	310	92	5	61	32	3	1.062	0	0	0	10	1.3	1.5	0.5	18.6
MSU245-1	1	287	332	86	14	74	12	0	1.090	0	0	0	0	2.5	2.0	1.1	10.3
MSV301-2	1	284	310	92	6	64	27	2	1.080	20	0	0	0	1.5	3.0	0.4	24.3
A02267-1Y	1	283	342	83	14	77	6	3	1.060	0	40	0	0	2.0	3.0	0.5	17.0
MSV016-2	1	283	309	92	8	78	13	0	1.090	0	0	0	0	2.1	3.0	1.2	-
MSW437-9	1	279	308	90	10	85	6	0	1.070	0	0	0	0	2.6	2.0	0.4	17.7

Table 6

PRELIMINARY TRIAL, TABLESTOCK LINES
MONTCALM RESEARCH FARM
May 14 to September 10, 2015 (120 days)
DD Base 40°F 3130⁶

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	BRUISE ⁵	LB
		US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC				RAUDPC x100
Barbara	1	277	382	73	22	71	2	5	1.076	10	50	0	0	1.0	3.0	1.1	17.4
MSW500-04	1	274	301	91	9	88	3	0	1.074	0	0	0	0	2.0	3.0	0.5	-
MSV282-4Y	1	273	316	86	14	81	5	0	1.083	0	0	0	0	2.1	2.0	1.6	0.0
MSV292-1Y	1	270	292	93	5	72	20	3	1.065	0	10	0	0	2.0	2.0	0.5	-
MSX293-1Y	1	269	329	82	18	82	0	0	1.079	0	0	0	0	1.6	2.0	0.8	0.6
MSW237-4Y	1	266	297	89	11	89	0	0	1.082	0	0	0	0	1.8	3.0	2.5	14.8
MSW270-1	1	265	337	79	21	79	0	0	1.074	0	0	0	0	1.9	1.0	0.4	-
W9576-11Y	1	251	314	80	19	77	4	1	1.058	0	10	0	0	1.4	1.0	0.3	23.4
MSW569-2	1	250	275	91	9	80	12	0	1.077	0	0	0	0	1.9	2.0	0.4	-
MSX497-6	2	245	264	93	7	93	0	0	1.069	0	0	0	0	2.9	2.0	0.3	1.6
MSY452-1	2	244	293	84	11	58	26	6	1.062	0	5	0	0	1.4	2.0	0.6	6.5
MSV089-2	1	243	277	88	12	82	6	0	1.077	0	0	0	0	1.8	2.0	0.9	-
MST229-1	1	233	258	90	10	84	6	0	1.081	0	10	0	0	1.8	3.0	1.5	-
Superior	2	231	253	91	9	81	11	0	1.072	5	0	0	0	1.6	1.0	1.2	-
MSW298-4Y	2	230	315	73	27	72	2	0	1.076	0	5	10	0	2.3	1.0	0.6	12.1
MSW119-2	2	228	283	81	20	78	3	0	1.075	0	5	0	0	1.1	2.5	0.6	13.0
MSX011-4	1	226	287	79	21	79	0	0	1.090	10	0	0	0	3.0	2.0	1.5	18.9
MSX010-3	2	208	264	79	21	77	2	0	1.078	0	0	0	0	2.5	1.5	1.2	24.6
MSW242-5Y	1	185	311	59	41	59	0	0	1.077	0	10	0	0	2.9	1.0	1.8	0.0
MSW500-10	2	177	221	76	24	74	2	0	1.072	5	5	0	0	-	2.0	0.2	22.8
CO07370-1W/Y	1	165	307	54	46	54	0	0	1.062	0	20	0	0	2.1	4.0	0.6	12.7
MSX255-1	1	153	245	62	38	62	0	0	1.089	0	10	0	0	1.4	2.0	0.5	22.4
MSY520-1	1	118	172	69	31	69	0	0	1.068	0	30	0	0	1.4	1.0	0.1	5.4
CO05037-3W/Y	1	95	181	53	47	53	0	0	1.073	0	10	0	0	2.0	1.0	0.4	26.7
MSW092-1	1	0	106	0	100	0	0	0	-	0	0	0	0	2.4	4.0	-	0.2
MEAN		301	349						1.075					1.9	2.3	0.8	14.6
HSD _{0.05}		NS	NS						0.009					1.4			10.8

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 28, 2015; 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.

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

⁶Enviroweather: Entrican Station. Planting to vine kill

Table 7

PRELIMINARY TRIAL, PIGMENTED LINES
MONTCALM RESEARCH FARM
May 14 to September 14, 2015 (123 days)
DD Base 40°F 3130⁵

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	LB RAUDPC x100
		US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC			
MSX517-3SPL	1	494	536	92	8	84	8	0	1.075	0	10	0	0	2.4	2.0	4.0
Michigan Purple Sport I	1	484	520	93	3	67	26	4	1.069	0	0	0	0	2.6	2.0	-
MSZUNK-7	1	399	423	94	5	62	33	0	1.048	0	0	0	0	1.6	2.0	21.0
Dakota Ruby	1	391	471	83	17	83	0	0	1.068	0	10	0	0	2.0	2.0	22.0
MSX507-1R	1	362	387	93	7	76	18	0	1.060	0	0	0	0	2.4	1.0	5.0
MSU198-01SPL	1	348	407	86	4	58	28	10	1.061	0	0	0	0	1.6	2.0	16.0
MST075-1R	1	348	382	91	9	91	0	0	1.069	0	0	0	0	1.9	2.0	24.0
MSX148-1WP	1	347	376	92	8	84	8	0	1.075	0	0	0	0	1.5	3.0	-
MSU202-1P	1	347	372	93	7	75	18	0	1.064	0	0	0	0	1.4	1.0	22.0
MSX569-1R	1	347	383	90	10	88	3	0	1.059	0	0	0	10	2.0	1.0	-
MSU316-3PY	1	313	362	86	14	86	0	0	1.060	0	10	0	0	1.8	2.0	20.0
MSZ107-6PP	1	306	365	84	16	81	3	0	1.074	0	0	0	0	1.8	2.0	-
Merlot	1	304	449	68	32	68	0	0	1.070	0	10	0	0	2.4	2.0	14.0
Red Norland	2	297	322	92	8	88	4	0	1.060	5	5	0	0	1.5	1.0	26.0
MSU616-3PP	1	277	350	79	21	77	2	0	1.069	10	0	0	0	2.0	1.0	-
MSY544-5R	1	262	355	74	23	74	0	3	1.062	0	0	0	0	2.0	1.0	-
MSX324-2R	1	229	255	90	7	87	2	3	1.070	0	10	0	0	1.0	2.0	19.0
MSY480-3RY	1	227	285	80	16	71	9	5	1.064	0	0	0	0	1.8	3.0	-
Purple Surprise 3	1	213	244	87	13	77	10	0	1.063	0	0	0	0	1.6	1.0	24.0
MSX001-4WP	1	175	201	87	13	82	6	0	1.064	0	0	0	0	1.8	1.0	22.0
CO07102-1R	1	168	229	73	27	73	0	0	1.059	0	0	0	0	2.6	1.0	27.0
MSZ109-07PP	1	130	208	62	38	62	0	0	1.059	0	0	0	0	1.4	3.0	-
MEAN		308	358						1.065					1.9	1.7	19.0
HSD _{0.05}		NS	NS						NS					1.4		10.8

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 28, 2015; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

⁵Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/14/15

Vine Kill: 9/10/15

Days from planting to vine kill: 119

Table 8

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICSPRELIMINARY TRIAL: Scab resistant "MSZ" LINES
MONTCALM RESEARCH FARM
May 18 to September 16, 2015 (121 days)
DD Base 40°F 3048°

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	SFA OTF	SED OTF	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	BRUISE ⁵
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC			
MSZ096-02	2	394	416	95	5	86	9	0	1.088	1.0	2.0	0	0	0	0	1.8	3.5	1.6
MSZ020-04	2	393	456	86	14	74	12	0	1.090	1.5	2.0	10	10	0	0	nd	0.0	0.7
MSZ045-09	2	362	399	91	7	71	19	2	1.074	1.0	1.0	10	10	0	0	1.5	4.0	0.2
MSZ118-02	2	354	416	85	15	84	1	0	1.089	1.0	2.0	0	0	10	0	nd	0.0	0.4
MSZ120-04	1	347	403	86	13	84	1	1	1.089	1.5	1.0	0	10	0	0	2.0	4.0	0.6
Atlantic	2	333	370	89	11	87	2	0	1.095	1.5	0.0	10	5	10	0	2.8	2.0	1.8
MSZ219-14	2	326	358	91	9	82	9	0	1.089	1.0	1.0	20	20	0	0	0.5	3.5	1.3
MSZ096-03	2	321	359	89	11	82	7	0	1.081	1.5	2.0	0	30	5	0	1.0	3.5	1.6
MSZ022-19	2	308	337	91	9	79	12	0	1.086	1.5	0.0	0	10	0	0	1.8	3.0	0.5
MSZ062-18	2	307	371	82	18	77	5	0	1.077	1.5	2.0	0	5	0	5	0.5	2.5	0.6
MSZ022-16	2	303	335	91	9	87	4	0	1.089	1.0	1.0	10	25	10	0	0.8	3.0	1.3
MSZ026-08	2	302	334	91	9	82	9	0	1.083	1.0	1.0	0	10	0	0	2.3	3.0	0.8
Snowden	2	298	368	81	18	79	2	1	1.090	1.0	1.0	0	30	0	0	3.2	2.0	1.7
MSZ062-31Y	2	291	353	83	17	81	1	0	1.073	1.0	1.0	0	0	0	0	1.0	3.0	0.6
MSZ219-29	2	280	298	94	6	89	5	0	1.079	1.0	0.0	10	25	5	0	0.5	2.0	1.2
MSZ219-46	2	273	279	98	2	69	29	0	1.087	1.5	4.0	10	15	0	0	0.3	3.0	0.7
MSZ052-13	2	271	306	88	12	87	1	0	1.089	1.0	1.0	0	15	0	0	0.3	2.5	1.8
MSZ118-19	2	269	302	89	11	78	11	0	1.093	1.0	2.0	0	15	0	0	0.5	3.0	2.2
MSZ062-50	2	266	294	91	9	75	16	0	1.089	1.0	1.0	0	5	0	0	0.5	4.0	1.8
MSZ022-07	2	263	301	87	13	84	3	0	1.083	1.0	1.0	10	10	0	0	0.8	2.0	0.8
MSZ101-07	2	251	301	83	15	76	7	2	1.086	1.0	2.0	15	5	0	0	2.0	3.5	1.1
MSZ022-14	2	248	281	88	12	82	6	0	1.079	1.5	3.0	0	5	0	0	1.0	3.0	0.8
MSZ020-08	2	244	265	92	8	91	1	0	1.082	1.0	0.0	0	5	0	0	0.5	2.0	0.6
MSZ052-31	2	231	242	95	5	93	2	0	1.083	1.0	1.0	5	0	20	5	0.5	2.5	0.8
MSZ062-06	2	231	276	84	14	74	10	3	1.082	1.0	0.0	10	0	5	0	1.3	3.0	0.8
MSZ020-10	2	231	259	89	11	72	17	0	1.087	1.5	0.0	15	10	0	5	2.5	2.5	0.7
MSZ101-06	2	218	288	76	24	75	1	0	1.081	1.0	1.0	0	0	0	0	2.0	3.0	0.8
MSZ242-03	2	209	276	76	23	75	1	1	1.094	1.0	2.0	5	5	5	0	0.8	2.5	0.5
MSZ052-14	2	206	262	78	22	74	4	0	1.085	1.0	2.0	0	15	0	0	1.0	3.0	1.6
MSZ118-08	1	203	302	67	33	67	0	0	1.088	1.0	2.0	0	0	0	0	0.5	3.0	0.4
MSZ103-02Y	2	198	233	85	15	80	5	1	1.087	1.5	2.0	0	5	0	0	1.0	2.5	1.2
MSZ242-15Y	2	197	223	87	13	82	5	0	1.093	1.5	0.0	10	0	0	0	0.8	2.5	1.0
MSZ242-14Y	2	193	227	84	15	83	1	1	1.083	1.5	1.0	0	0	0	0	1.3	1.5	0.3
MSZ062-42	2	181	230	82	17	76	6	1	1.084	1.5	3.0	0	5	0	0	0.5	2.5	0.5
MSZ242-13	2	179	220	81	19	78	3	0	1.100	1.0	0.0	0	5	0	0	0.8	3.0	1.0
MSZ242-09	2	170	227	75	25	70	5	0	1.093	1.0	1.0	0	10	0	0	1.3	2.0	0.8
MSZ222-15	2	166	212	77	20	74	3	3	1.078	1.5	1.0	5	0	0	0	1.0	2.5	0.8
MSZ242-12	2	164	208	78	20	74	4	2	1.092	1.0	0.0	5	0	5	0	1.5	3.0	1.4

Table 8

**PRELIMINARY TRIAL: Scab resistant "MSZ" LINES
 MONTCALM RESEARCH FARM
 May 18 to September 16, 2015 (121 days)
 DD Base 40°F 3048⁶**

LINE	N	CWT/A		PERCENT OF TOTAL ¹					SP GR	SFA OTF	SED OTF	PERCENT (%) TUBER QUALITY ²				SCAB ³	MAT ⁴	BRUISE ⁵
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC			
MSZ052-40	2	151	216	69	30	69	0	1	1.092	1.0	1.0	0	5	0	0	1.0	3.0	0.8
MSZ222-18	2	147	237	62	25	58	4	12	1.069	0.0	0.0	55	0	0	0	2.0	3.0	-
MSZ242-07	2	137	149	93	7	72	21	0	1.101	1.5	0.0	0	5	0	0	1.5	3.0	0.9
MSZ062-10	2	137	162	85	15	79	6	0	1.092	1.0	1.0	0	10	10	0	0.5	2.5	0.3
MSZ169-01	2	125	137	90	9	78	12	2	1.077	1.0	3.0	0	15	0	0	0.8	3.5	0.1
MSZ052-11	2	113	210	54	43	54	0	3	1.082	1.0	1.0	0	15	0	0	0.8	2.0	0.3
MSZ062-46	2	110	209	51	49	51	0	0	1.081	1.0	1.0	0	5	0	5	1.0	2.0	0.5
MSZ118-20	2	103	179	53	47	53	0	0	1.081	1.5	0.0	0	0	0	0	0.8	2.5	0.4
MSZ052-38	2	80	87	92	6	85	7	2	1.085	1.0	1.0	0	15	10	0	0.5	3.5	-
MEAN		236	280						1.086							1.1	2.7	0.9
HSD _{0.05}		220	234						0.012							1.4		

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: 2014 On Farm Scab Trial; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁴MATURITY RATING: August 28, 2015; 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.

Plant Date: 5/18/15

Vine Kill: 9/10/15

Days from planting to vine kill: 115

⁶Enviroweather: Entrican Station. Planting to vine kill

Table 9

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2013-2015 SCAB DISEASE TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2015 RATING	2015 WORST	2015 N	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N
<i>Sorted by ascending 2015 Average Rating:</i>										
MST386-1P	0.8*	0.6	1.5	4	1.0	1.5	4	-	-	-
MSY573-3Rus	-	0.6	1.0	4	-	-	-	-	-	-
AF4648-2 ^{PVYR}	-	0.9	1.0	4	-	-	-	-	-	-
MSV092-2	-	0.9	1.0	4	-	-	-	-	-	-
MSW353-3	-	0.9	1.0	4	-	-	-	-	-	-
Silverton Russet	1.2	0.9	1.0	4	1.6	2.0	4	1.1	2	4
Barbara	-	1.0	1.5	4	-	-	-	-	-	-
MSW474-01	-	1.0	1.5	4	-	-	-	-	-	-
MSX225-2	-	1.0	1.5	4	-	-	-	-	-	-
MSX324-2R	-	1.0	1.5	4	-	-	-	-	-	-
MSX503-5	-	1.0	2.0	4	-	-	-	-	-	-
MSZ407-2Y	-	1.0	1.5	4	-	-	-	-	-	-
A01143-3C	-	1.1	1.5	4	-	-	-	-	-	-
AF5320-1	-	1.1	1.5	4	-	-	-	-	-	-
Granola	0.9*	1.1	1.5	4	0.8	1.0	4	-	-	-
McBride	1.0	1.1	1.5	4	1.1	1.5	4	0.8	1.5	4
MST441-1	1.0*	1.1	1.5	4	0.9	1.5	4	-	-	-
MSU383-A	-	1.1	2.0	4	-	-	-	-	-	-
MSV081-04	-	1.1	1.5	4	-	-	-	-	-	-
MSV383-B	-	1.1	1.5	4	-	-	-	-	-	-
MSW100-1 ^{LBR}	-	1.1	1.5	4	-	-	-	-	-	-
MSW119-2	-	1.1	1.5	4	-	-	-	-	-	-
MSW125-3	1.3*	1.1	1.5	4	-	-	-	1.4	1.5	4
MSX324-1P	-	1.1	2.0	8	-	-	-	-	-	-
MSZ219-01 ^{PVYR}	-	1.1	1.5	4	-	-	-	-	-	-
MSZ263-4	-	1.1	1.5	4	-	-	-	-	-	-
W9519-3Rus	-	1.1	1.5	4	-	-	-	-	-	-
A01010-1 (Targhee Russet)	1.5*	1.3	2.0	4	-	-	-	1.75	2.5	4
AF3362-1Rus (Caribou Russet)	1.1*	1.3	1.5	4	1.0	1.0	4	-	-	-
CO5068-1Rus ^{LBM}	1.3*	1.3	2.0	4	-	-	-	1.25	1.5	4
MSR127-2	1.2	1.3	1.5	4	1.4	2.0	4	1.0	1.5	4
MSS164-1 ^{LBR}	1.3*	1.3	1.5	4	1.3	1.5	4	-	-	-
MST186-1Y	1.4*	1.3	1.5	4	1.6	2.0	4	-	-	-
MSU379-1	-	1.3	1.5	4	-	-	-	-	-	-
MSV380-1	1.1*	1.3	1.5	4	0.9	1.5	4	-	-	-
MSV507-129	1.1*	1.3	2.0	4	0.9	1.0	4	-	-	-
MSV507-143	-	1.3	1.5	4	-	-	-	-	-	-
MSW123-3	-	1.3	1.5	4	-	-	-	-	-	-
MSW502-4	-	1.3	1.5	4	-	-	-	-	-	-
MSX526-1	-	1.3	1.5	4	-	-	-	-	-	-
MSZ222-19	-	1.3	2.0	4	-	-	-	-	-	-
MSU202-1P	1.3*	1.4	1.5	4	1.1	1.5	4	-	-	-
MSV111-1 ^{LBR}	1.6	1.4	2.0	4	1.6	2.0	4	1.9	2	4
MSV397-2	-	1.4	2.0	4	-	-	-	-	-	-
MSW064-1	-	1.4	2.0	4	-	-	-	-	-	-
MSW163-03	-	1.4	1.5	4	-	-	-	-	-	-
MSW229-5P ^{LBR}	-	1.4	2.0	4	-	-	-	-	-	-
MSW505-2	-	1.4	1.5	4	-	-	-	-	-	-
MSW509-5	1.1*	1.4	2.0	4	-	-	-	0.8	1.5	4
MSX156-2	-	1.4	2.0	4	-	-	-	-	-	-
MSX196-1	-	1.4	2.0	4	-	-	-	-	-	-
MSX255-1	-	1.4	1.5	4	-	-	-	-	-	-
MSY452-1	-	1.4	1.5	4	-	-	-	-	-	-
MSY520-1	-	1.4	2.0	4	-	-	-	-	-	-
MSZ109-07PP	-	1.4	2.0	4	-	-	-	-	-	-
MSZ282-6	-	1.4	1.5	4	-	-	-	-	-	-
QSMSU10-02 ^{LBR}	1.2*	1.4	1.5	4	1.0	1.0	4	-	-	-
W9576-11Y	-	1.4	1.5	4	-	-	-	-	-	-

Table 9

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SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2015 RATING	2015 WORST	2015 N	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N
W9576-13Y	-	1.4	2.5	4	-	-	-	-	-	-
MST252-1Y	1.3	1.5	2.0	4	0.8	1.0	4	1.5	2	4
MSV241-2	-	1.5	2.0	4	-	-	-	-	-	-
MSV301-2	1.5*	1.5	2.0	4	1.5	2.0	4	-	-	-
MSW044-1	-	1.5	2.0	4	-	-	-	-	-	-
MSW126-1	-	1.5	2.0	4	-	-	-	-	-	-
MSW394-1	-	1.5	2.0	4	-	-	-	-	-	-
MSX148-1WP	-	1.5	2.0	4	-	-	-	-	-	-
MSX506-3	-	1.5	1.5	4	-	-	-	-	-	-
MSY008-3	-	1.5	2.0	4	-	-	-	-	-	-
MSY111-1	-	1.5	1.5	4	-	-	-	-	-	-
MSY193-1	-	1.5	2.0	4	-	-	-	-	-	-
MSY491-2Y	-	1.5	2.0	4	-	-	-	-	-	-
Pike	1.4	1.5	1.5	4	1.3	1.5	4	1.4	2	4
Red Norland	1.6	1.5	2.0	8	1.4	2.0	9	2.0	2.5	4
W5955-1	1.5	1.5	2.0	4	1.6	2.0	4	1.5	2	4
MSX472-2	-	1.6	2.0	8	-	-	-	-	-	-
ATX91137-1Rus (Reveille Russet)	1.4*	1.6	2.0	4	1.1	2.0	4	-	-	-
MST094-1	1.6*	1.6	2.0	4	1.6	2.0	4	-	-	-
MSU198-01SPL	-	1.6	2.0	4	-	-	-	-	-	-
MSV030-4	1.8*	1.6	2.0	4	1.9	2.0	4	-	-	-
MSV358-3	1.6*	1.6	2.0	4	1.5	2.5	3	-	-	-
MSV505-2	1.3*	1.6	2.0	4	0.9	1.0	4	-	-	-
MSW075-1	-	1.6	2.0	4	-	-	-	-	-	-
MSW502-3	-	1.6	2.0	4	-	-	-	-	-	-
MSW509-1	-	1.6	2.0	8	-	-	-	-	-	-
MSW537-6	-	1.6	2.0	4	-	-	-	-	-	-
MSX129-1	-	1.6	2.0	4	-	-	-	-	-	-
MSX245-2Y	-	1.6	2.0	4	-	-	-	-	-	-
MSX293-1Y ^{LBR}	-	1.6	2.0	4	-	-	-	-	-	-
MSX417-1	-	1.6	2.0	4	-	-	-	-	-	-
MSZUNK-7	-	1.6	2.0	4	-	-	-	-	-	-
Purple Surprise 3	-	1.6	2.0	4	-	-	-	-	-	-
QSMSU10-15	1.5	1.6	2.0	4	1.8	2.5	4	1.1	2	4
Soraya	-	1.6	2.0	4	-	-	-	-	-	-
Superior	-	1.6	2.0	4	-	-	-	-	-	-
MSV093-1 ^{LBM}	1.4	1.7	2.0	8	1.4	2.0	4	1.3	2	4
Lamoka	1.6	1.8	2.0	4	1.5	2.0	4	1.5	2	4
MSS576-05SPL ^{LBR}	1.8	1.8	2.5	4	1.6	2.0	8	2.2	2.5	8
MST229-1	-	1.8	2.0	4	-	-	-	-	-	-
MSU316-3PY	-	1.8	2.0	4	-	-	-	-	-	-
MSV089-2	-	1.8	2.0	4	-	-	-	-	-	-
MSV266-3P	-	1.8	2.0	4	-	-	-	-	-	-
MSV307-02	1.6*	1.8	2.0	4	1.5	2.0	4	-	-	-
MSV335-1	-	1.8	2.0	4	-	-	-	-	-	-
MSV393-1	-	1.8	2.0	4	-	-	-	-	-	-
MSV394-3	1.7*	1.8	2.0	4	1.6	2.0	4	-	-	-
MSV396-4Y ^{LBM}	1.8*	1.8	2.0	4	1.8	2.5	4	-	-	-
MSW237-4Y	-	1.8	2.0	4	-	-	-	-	-	-
MSW324-01 ^{LBR}	-	1.8	2.0	4	-	-	-	-	-	-
MSX001-4WP	-	1.8	2.0	4	-	-	-	-	-	-
MSX137-6	-	1.8	2.0	4	-	-	-	-	-	-
MSX172-7	-	1.8	2.5	4	-	-	-	-	-	-
MSX410-12Y	-	1.8	2.0	4	-	-	-	-	-	-
MSX495-2	-	1.8	2.0	4	-	-	-	-	-	-
MSY042-1	-	1.8	2.0	4	-	-	-	-	-	-
MSY480-3RY	-	1.8	2.0	4	-	-	-	-	-	-
MSZ107-6PP	-	1.8	2.0	4	-	-	-	-	-	-
MSZ280-7	-	1.8	2.0	4	-	-	-	-	-	-
NY154 ^{LBM}	1.7*	1.8	2.0	4	1.6	2.0	4	-	-	-

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SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2015 RATING	2015 WORST	2015 N	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N
Oneida Gold	-	1.8	2.5	4	-	-	-	-	-	-
QMSU08-04	1.8	1.8	2.0	4	1.6	2.0	4	2.0	2.5	4
MST075-1R	-	1.9	2.5	4	-	-	-	-	-	-
MSV033-1	1.9*	1.9	2.0	4	2.0	2.5	4	-	-	-
MSV179-1	1.5*	1.9	2.0	4	-	-	-	1.1	1.5	4
MSV434-1Y	1.7*	1.9	2.0	4	1.5	2.0	4	-	-	-
MSV502-5	-	1.9	2.0	4	-	-	-	-	-	-
MSW270-1	-	1.9	2.0	4	-	-	-	-	-	-
MSW399-2	-	1.9	2.0	4	-	-	-	-	-	-
MSW464-3 ^{LBR}	-	1.9	2.5	4	-	-	-	-	-	-
MSW569-2	-	1.9	2.5	4	-	-	-	-	-	-
MSX009-2	-	1.9	2.0	4	-	-	-	-	-	-
MSX221-2	-	1.9	2.5	4	-	-	-	-	-	-
MSX345-6Y	-	1.9	2.5	4	-	-	-	-	-	-
MSX542-2	-	1.9	2.0	4	-	-	-	-	-	-
MSY022-2	-	1.9	2.0	4	-	-	-	-	-	-
MSZ159-3	-	1.9	2.0	4	-	-	-	-	-	-
W9433-1Rus	1.6*	1.9	2.0	4	1.3	2.0	4	-	-	-
A02267-1Y	-	2.0	2.0	4	-	-	-	-	-	-
CO05037-3W/Y	-	2.0	2.0	4	-	-	-	-	-	-
Dakota Ruby	-	2.0	2.0	4	-	-	-	-	-	-
MSR061-1 ^{LBR,PVYR}	1.7	2.0	2.0	3	1.0	1.5	4	2.0	2	4
MSU616-3PP	-	2.0	2.5	4	-	-	-	-	-	-
MSV292-1Y	1.8*	2.0	2.5	4	-	-	-	1.5	2.5	4
MSW168-2	-	2.0	2.0	4	-	-	-	-	-	-
MSW248-02	-	2.0	2.5	4	-	-	-	-	-	-
MSW485-2	-	2.0	2.0	4	-	-	-	-	-	-
MSW496-1Rus	-	2.0	2.0	2	-	-	-	-	-	-
MSW500-04	-	2.0	2.5	4	-	-	-	-	-	-
MSX398-2 ^{LBR}	-	2.0	2.5	4	-	-	-	-	-	-
MSX540-4 ^{PVYR, LBR}	1.4*	2.0	2.5	4	0.9	1.0	4	-	-	-
MSX569-1R	-	2.0	2.0	2	-	-	-	-	-	-
MSY544-5R	-	2.0	2.0	4	-	-	-	-	-	-
MSZ025-5	-	2.0	3.0	4	-	-	-	-	-	-
MSZ030-4	-	2.0	2.0	4	-	-	-	-	-	-
MSZ300-1	-	2.0	2.5	4	-	-	-	-	-	-
Spartan Splash	2.2*	2.0	2.0	4	-	-	-	2.4	3	4
W9742-3Rus	-	2.0	3.5	4	-	-	-	-	-	-
BNC182-5	1.9*	2.1	2.5	4	1.6	2.0	4	-	-	-
CO07370-1W/Y	-	2.1	3.0	4	-	-	-	-	-	-
CW08071-2Rus	-	2.1	3.0	4	-	-	-	-	-	-
Dakota Diamond	2.1*	2.1	3.0	4	2.0	2.5	4	-	-	-
Manistee	2.4	2.1	2.5	4	1.9	2.0	4	3.3	3.5	4
MSS487-2 ^{LBR}	2.7	2.1	3.0	4	2.6	3.0	4	3.3	3.5	4
MSU016-2	-	2.1	2.5	4	-	-	-	-	-	-
MSV016-2	-	2.1	2.5	4	-	-	-	-	-	-
MSV127-1	-	2.1	2.5	4	-	-	-	-	-	-
MSV282-4Y ^{LBR}	-	2.1	2.5	4	-	-	-	-	-	-
MSV284-1 ^{LBR}	-	2.1	2.5	4	-	-	-	-	-	-
MSV440-6 ^{LBR}	2.3*	2.1	2.5	4	2.4	2.5	4	-	-	-
MSV507-056	2.3*	2.1	2.5	4	2.4	3.0	5	-	-	-
MSW182-1Y	2.4*	2.1	2.5	4	-	-	-	2.6	3	4
MSW294-1	-	2.1	2.5	4	-	-	-	-	-	-
MSZ119-1	-	2.1	2.5	4	-	-	-	-	-	-
NY157	-	2.1	2.5	4	-	-	-	-	-	-
Reba	2.3	2.1	3.0	8	2.3	2.5	6	2.6	3	4
Russet Norkotah	2.1	2.1	2.5	4	1.8	2.5	7	2.5	3	4
W9577-6Y	2.1*	2.1	2.5	4	2.0	2.0	3	-	-	-
MSW134-1	-	2.2	2.5	3	-	-	-	-	-	-
AF4975-3	-	2.3	3.0	4	-	-	-	-	-	-

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SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	3-YR* AVG.	2015 RATING	2015 WORST	2015 N	2014 RATING	2014 WORST	2014 N	2013 RATING	2013 WORST	2013 N
AW07791-2Rus	-	2.3	2.5	4	-	-	-	-	-	-
MSU161-1 ^{LBM, PVYR}	2.0*	2.3	2.5	4	1.8	2.0	4	-	-	-
MSW239-3SPL	2.3	2.3	3.0	4	2.4	3.0	4	2.3	3	4
MSW298-4Y	-	2.3	2.5	4	-	-	-	-	-	-
MSW299-2	-	2.3	2.5	4	-	-	-	-	-	-
MSX156-1Y	-	2.3	2.5	4	-	-	-	-	-	-
MSZ157-3 ^{LBR}	-	2.3	3.0	4	-	-	-	-	-	-
MSZ194-2	-	2.3	2.5	2	-	-	-	-	-	-
MSZ452-1	-	2.3	2.5	4	-	-	-	-	-	-
VC1009-1W/Y	-	2.3	2.5	4	-	-	-	-	-	-
Molli	-	2.3	2.5	3	-	-	-	-	-	-
A05182-7Y	-	2.4	3.0	4	-	-	-	-	-	-
Beacon Chipper	2.1*	2.4	3.0	4	1.8	2.0	4	-	-	-
Merlot	-	2.4	3.0	4	-	-	-	-	-	-
MSV246-1	-	2.4	3.0	4	-	-	-	-	-	-
MSW042-1 ^{LBR}	-	2.4	2.5	4	-	-	-	-	-	-
MSW092-1 ^{LBR}	-	2.4	3.0	4	-	-	-	-	-	-
MSW326-6	-	2.4	3.0	4	-	-	-	-	-	-
MSW556-1	-	2.4	3.0	4	-	-	-	-	-	-
MSX420-4Y	-	2.4	3.0	4	-	-	-	-	-	-
MSX507-1R ^{LBR}	-	2.4	3.0	4	-	-	-	-	-	-
MSX517-3SPL ^{LBR}	-	2.4	3.0	4	-	-	-	-	-	-
CO02343-3W	-	2.5	3.0	4	-	-	-	-	-	-
FL1879	2.5*	2.5	3.0	4	2.5	3.0	4	-	-	-
MST148-3	2.5	2.5	3.0	4	2.4	3.0	4	2.6	4	4
MST191-2Y	2.7*	2.5	3.0	4	2.9	3.0	4	-	-	-
MSU245-1	-	2.5	2.5	4	-	-	-	-	-	-
MSW151-05	-	2.5	3.0	4	-	-	-	-	-	-
MSW164-2	-	2.5	2.5	4	-	-	-	-	-	-
MSW259-5	-	2.5	3.0	4	-	-	-	-	-	-
MSX010-3	-	2.5	3.0	4	-	-	-	-	-	-
MSX198-5 ^{LBR}	-	2.5	2.5	4	-	-	-	-	-	-
MSZ507-2 ^{LBR}	-	2.5	3.0	4	-	-	-	-	-	-
CO07102-1R	-	2.6	3.0	4	-	-	-	-	-	-
Maris Bard	-	2.6	3.0	4	-	-	-	-	-	-
Michigan Purple Sport I	2.3	2.6	3.0	4	1.5	2.0	4	2.6	3	4
MSV235-2PY ^{LBR}	2.8	2.6	3.0	4	2.8	3.0	4	3.1	3.5	4
MSW121-5R ^{LBR}	-	2.6	3.5	4	-	-	-	-	-	-
MSW437-9	2.8*	2.6	3.0	4	-	-	-	2.8	3	4
MSZ057-5	-	2.6	3.0	4	-	-	-	-	-	-
CalWhite	-	2.8	3.5	4	-	-	-	-	-	-
MSW068-4	-	2.8	3.0	4	-	-	-	-	-	-
MSW236-3	-	2.8	3.5	4	-	-	-	-	-	-
Snowden	2.8	2.8	3.5	8	2.6	3.0	8	3.1	3.5	12
Atlantic	2.8	2.8	3.5	8	2.6	3.0	8	3.2	3.5	12
MSW242-5Y ^{LBR}	-	2.9	3.5	4	-	-	-	-	-	-
MSX497-6 ^{LBR}	-	2.9	3.5	4	-	-	-	-	-	-
ND8068-5Rus	-	2.9	3.0	4	-	-	-	-	-	-
NYK28-18	-	2.9	3.5	4	-	-	-	-	-	-
MSX011-4	-	3.0	3.0	4	-	-	-	-	-	-
MSW360-18 ^{PVYR}	-	3.1	3.5	4	-	-	-	-	-	-
HSD_{0.05} =		1.4			1.5			1.5		

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 10

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSAA055-13	0.0	1	MSP239-1	MSV383-B
MSAA205-1	0.0	1	AO008-1TE	Silverton Russet
MSAA035-1	0.5	1	MSL007-B	MSR169-8Y
MSAA036-01	0.5	1	Manistee	MSR127-2
MSAA049-1	0.5	1	MegaChip	McBride
MSAA067-4	0.5	1	MSR061-1	MSR127-2
MSAA101-1RR	0.5	1	Adirondack Blue	Colonial Purple
MSAA103-1RR	0.5	1	Adirondack Blue	MSR214-2P
MSAA110-1	0.5	1	Colonial Purple	MSR217-1R
MSAA151-1	0.5	1	MSS544-1R	Colonial Purple
MSAA156-1	0.5	1	Spartan Splash	Colonial Purple
MSAA161-1PY	0.5	1	MST386-1P	MN02616RY
MSAA161-4RY	0.5	1	MST386-1P	MN02616RY
MSAA163-3	0.5	1	MST386-1P	MSR214-2P
MSAA203-2	0.5	1	AO008-1TE	Goldrush Russet
MSAA214-2	0.5	1	Elkton	Pike
MSAA313-2	0.5	1	Elkton	Lamoka
MSAA392-3	0.5	1	MSP239-1	McBride
MSAA481-1	0.5	1	MSS927-1	MSV241-2
MSAA498-18	0.5	1	MSV092-2	Elkton
MSAA502-3	0.5	1	MSV092-2	Manistee
MSAA507-10	0.5	1	MSV092-2	MSR127-2
MSAA571-4	0.5	1	MSV313-1	MSR169-8Y
MSAA720-1	0.5	1	Silverton Russet	A01124-3Rus
MSX245-2Y	0.5	1	Manistee	McBride
MSX324-1P	0.5	1	MSN105-1	Colonial Purple
MSY507-2	0.5	1	Superior	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
MSZ107-1PP	0.5	1	COMN07-W112BG1	MSR127-2
MSZ109-05RR	0.5	1	COMN07-W112BG1	MSU200-5PP
MSZ213-2P	0.5	1	MSQ279-1	Colonial Purple
MSZ223-2	0.5	1	MSR148-4	MSS297-3
MSZ412-2RR	0.5	1	Colonial Purple	MST406-2RR
MSZ427-3R	0.5	1	MSQ440-2	NDTX4271-5R
MSAA006-2	1.0	1	Beacon Chipper	Elkton
MSAA012-11	1.0	1	Beacon Chipper	MSR169-8Y
MSAA014-2	1.0	1	Beacon Chipper	MSS297-3
MSAA036-10	1.0	1	Manistee	MSR127-2
MSAA055-10	1.0	1	MSP239-1	MSV383-B
MSAA056-8	1.0	1	MSP270-1	McBride
MSAA072-2	1.0	1	MSR127-2	Lamoka
MSAA072-4	1.0	1	MSR127-2	Lamoka
MSAA076-15	1.0	1	MSR127-2	MSS297-3
MSAA076-06	1.0	1	MSR127-2	MSS297-3
MSAA076-07	1.0	1	MSR127-2	MSS297-3
MSAA081-1	1.0	1	MSR169-8Y	MSQ086-3
MSAA086-2	1.0	1	MSR169-8Y	W6609-3
MSAA100-1	1.0	1	Snowden	MSR061-1

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POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSAA143-1	1.0	1	MSR606-2	MSL211-3
MSAA161-3RY	1.0	1	MST386-1P	MN02616RY
MSAA166-2P	1.0	1	MST386-1P	MSU200-5PP
MSAA170-3	1.0	1	MSU016-2	MSR157-1Y
MSAA194-2	1.0	1	MSW151-5	MSL211-3
MSAA208-1	1.0	1	AF4130-3	Lamoka
MSAA217-3	1.0	1	Beacon Chipper	Atlantic
MSAA228-1	1.0	1	CO22188-4W	MSR169-8Y
MSAA230-4	1.0	1	MSL007-B	McBride
MSAA241-1	1.0	1	MSM246-B	MSR127-2
MSAA242-2	1.0	1	MSM246-B	MSS297-3
MSAA250-1	1.0	1	NY140	MSR169-8Y
MSAA252-7	1.0	1	NY148	MSQ089-1
MSAA253-1	1.0	1	NY148	MSV241-2
MSAA253-2	1.0	1	NY148	MSV241-2
MSAA253-5	1.0	1	NY148	MSV241-2
MSAA254-4	1.0	1	MSP239-1	Lamoka
MSAA260-3	1.0	1	MSQ086-3	Atlantic
MSAA261-2	1.0	1	MSQ086-3	McBride
MSAA261-3	1.0	1	MSQ086-3	McBride
MSAA263-3	1.0	1	MSQ089-1	Lamoka
MSAA265-2	1.0	1	MSQ089-1	W6609-3
MSAA265-4	1.0	1	MSQ089-1	W6609-3
MSAA266-1	1.0	1	MSQ279-1	Manistee
MSAA271-5	1.0	1	MSS927-1	Lamoka
MSAA289-1	1.0	1	MSU379-1	MegaChip
MSAA290-2	1.0	1	MSU379-1	Tundra
MSAA311-3	1.0	1	Elkton	Atlantic
MSAA324-4	1.0	1	Boulder	Lamoka
MSAA328-06	1.0	1	Boulder	MSR169-8Y
MSAA342-11Y	1.0	1	MSJ042-3Y	MSR169-8Y
MSAA342-07Y	1.0	1	MSJ042-3Y	MSR169-8Y
MSAA376-1	1.0	1	NY148	MSQ086-3
MSAA376-3	1.0	1	NY148	MSQ086-3
MSAA392-5	1.0	1	MSP239-1	McBride
MSAA478-2	1.0	1	MSS927-1	Atlantic
MSAA481-2	1.0	1	MSS927-1	MSV241-2
MSAA498-17	1.0	1	MSV092-2	Elkton
MSAA498-07	1.0	1	MSV092-2	Elkton
MSAA498-09	1.0	1	MSV092-2	Elkton
MSAA502-5	1.0	1	MSV092-2	Manistee
MSAA507-11	1.0	1	MSV092-2	MSR127-2
MSAA509-2	1.0	1	MSV092-2	MSS165-2Y
MSAA523-1	1.0	1	MSV127-1	Lamoka
MSAA526-1	1.0	1	MSV127-1	MSS165-2Y
MSAA530-2	1.0	1	MSV158-2	McBride
MSAA570-15	1.0	1	MSV313-1	Lamoka
MSAA570-19	1.0	1	MSV313-1	Lamoka
MSAA578-4	1.0	1	MSV358-3	Pike
MSAA578-7	1.0	1	MSV358-3	Pike

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POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER , MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSAA588-3	1.0	1	MSV383-B	Lamoka
MSAA603-5	1.0	1	MSV434-4	Lamoka
MSAA678-1	1.0	1	W5015-12	Lamoka
MSAA690-2	1.0	1	W6609-3	Lamoka
MSAA708-1PP	1.0	1	Spartan Splash	MSU200-5PP
MSAA739-5	1.0	1	NYG86-1	MSS165-2Y
MSAA743-1	1.0	1	MSQ070-1	McBride
MSAA743-3	1.0	1	MSQ070-1	McBride
MSM269-1Y	1.0	1	84SD22	USDA8380-1
MSM270-BY	1.0	1	84SD22	W5337.3
Pike	1.0	2	Allegany	Atlantic
Purple Surprise	1.0	1		
MSQ341-BY	1.0	1	McBride	NY120
MSR127-2	1.0	1	MSJ167-1	MSG227-2
MSV383-B	1.0	1	Pike	MSN238-A
MSV407-2	1.0	1	MSQ070-1	MSP239-1
MSX105-1	1.0	1	Dakota Crisp	McBride
MSX172-7	1.0	1	McBride	Nicolet
MSX225-2	1.0	1	MSK061-4	Nicolet
MSX469-2	1.0	1	MSQ070-1	
MSX472-2	1.0	1	MSQ070-1	MSP292-7
MSX501-5	1.0	1	MSQ176-5	McBride
MSX503-5	1.0	1	MSQ176-5	MSL268-D
MSY027-2	1.0	1	MST096-2Y	Pike
MSY041-1	1.0	1	Dakota Diamond	MSP368-1
MSY044-1	1.0	1	MSK061-4	MST096-2Y
MSY111-1	1.0	1	MSQ086-3	McBride
MSY468-16	1.0	1	NYL235-4	MSL211-3
MSY480-3RY	1.0	1	MN96013-1RY	MSS544-1R
MSY520-1	1.0	1	MSQ440-2	MSN105-1
MSZ097-1	1.0	1	Boulder	Lamoka
MSZ109-10PP	1.0	1	COMN07-W112BG1	MSU200-5PP
MSZ144-04Y	1.0	1	M5	McBride
MSZ172-3	1.0	1	MSP270-1	W6609-3
MSZ205-1	1.0	1	MSQ070-1	MSU383-A
MSZ218-5	1.0	1	MSR061-1	MSQ086-3
MSZ246-1	1.0	1	Snowden	Dakota Diamond
MSZ248-02	1.0	1	Snowden	MSV229-2
MSZ251-1	1.0	1	MSS070-B	Lamoka
MSZ263-4	1.0	1	MSU088-1	McBride
MSZ282-6	1.0	1	MSV502-3	Kalkaska
MSZ407-2Y	1.0	1	Montanosa	Colonial Purple
MSZ413-6P	1.0	1	Colonial Purple	MSU200-5PP
MSZ416-8RY	1.0	1	MSN230-1RY	NDTX4271-5R
MSZ427-1R	1.0	1	MSQ440-2	NDTX4271-5R
MSZ436-2SPL	1.0	1	MSS576-05SPL	MSQ440-2
MSZ464-3	1.0	1	MSQ070-1	Alca Tarma
MSZ571-3R	1.0	1	NDTX4271-5R	Colonial Purple
MSZ590-1	1.0	1	Superior	Picasso
MSZ609-1P	1.0	1	386056.17	Colonial Purple

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POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSZ622-1	1.0	1	Satina	MSL211-3
MSZ709-01Y	1.0	1	MSM269-HORG	84SD22
MSZ744-1	1.0	1	MSM185-1	MSP091-1
McBride	1.1	4	Penta	OP
MSAA003-6	1.5	1	Atlantic	MSS165-2Y
MSAA011-1	1.5	1	Beacon Chipper	MSR159-2
MSAA012-01	1.5	1	Beacon Chipper	MSR169-8Y
MSAA034-2	1.5	1	MSL007-B	MSR127-2
MSAA036-03	1.5	1	Manistee	MSR127-2
MSAA036-07	1.5	1	Manistee	MSR127-2
MSAA036-09	1.5	1	Manistee	MSR127-2
MSAA055-01	1.5	1	MSP239-1	MSV383-B
MSAA056-5	1.5	1	MSP270-1	McBride
MSAA061-7	1.5	1	Pike	MSS297-3
MSAA072-5	1.5	1	MSR127-2	Lamoka
MSAA076-04	1.5	1	MSR127-2	MSS297-3
MSAA079-5	1.5	1	MSR169-8Y	Lamoka
MSAA083-4Y	1.5	1	MSR169-8Y	MSS165-2Y
MSAA091-1	1.5	1	MSS165-2Y	Lamoka
MSAA127-1	1.5	1	Purple Heart	MSV200-5PP
MSAA127-7	1.5	1	Purple Heart	MSV200-5PP
MSAA131-2	1.5	1	MSQ341-BY	MSQ176-5
MSAA139-1	1.5	1	MSR214-2P	Purple Heart
MSAA144-4	1.5	1	MSR606-2	MSQ086-3
MSAA168-1	1.5	1	MSU016-2	MSL211-3
MSAA168-3	1.5	1	MSU016-2	MSL211-3
MSAA169-3	1.5	1	MSU016-2	MSQ086-2
MSAA173-2	1.5	1	MSU161-1	MSQ086-3
MSAA176-3	1.5	1	MSU161-1	MSU016-2
MSAA177-3	1.5	1	MSU161-1	MSW126-1
MSAA182-3R	1.5	1	MSU200-5PP	MSS544-1R
MSAA185-1Y	1.5	1	MSV205-4	MSL211-3
MSAA196-1	1.5	1	MSW151-5	MSQ440-2
MSAA233-2	1.5	1	Lamoka	Pike
MSAA237-1	1.5	1	Lelah	MSR169-8Y
MSAA244-1	1.5	1	Missaukee	Lamoka
MSAA255-03	1.5	1	MSQ035-3	Lamoka
MSAA257-1	1.5	1	MSQ070-1	MSR127-2
MSAA260-2	1.5	1	MSQ086-3	Atlantic
MSAA267-2	1.5	1	MSQ279-1	Lamoka
MSAA275-5	1.5	1	Snowden	MSS297-3
MSAA283-2	1.5	1	Tundra	MSR127-2
MSAA309-15	1.5	1	Atlantic	Lamoka
MSAA311-1	1.5	1	Elkton	Atlantic
MSAA315-1	1.5	1	Beacon Chipper	McBride
MSAA328-11	1.5	1	Boulder	MSR169-8Y
MSAA328-04	1.5	1	Boulder	MSR169-8Y
MSAA328-09	1.5	1	Boulder	MSR169-8Y
MSAA335-7	1.5	1	CO00188-4W	Elkton
MSAA335-9	1.5	1	CO00188-4W	Elkton

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SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSAA372-3	1.5	1	NY140	Lamoka
MSAA373-3	1.5	1	NY148	McBride
MSAA468-4	1.5	1	MSR297-A	MSQ086-3
MSAA470-6	1.5	1	MSR297-A	W6609-3
MSAA474-8	1.5	1	MSS297-3	MSR127-2
MSAA498-01	1.5	1	MSV092-2	Elkton
MSAA498-11	1.5	1	MSV092-2	Elkton
MSAA503-2	1.5	1	MSV092-2	Lamoka
MSAA689-2	1.5	1	W6609-3	McBride
MSAA741-3	1.5	1	MSQ035-3	McBride
MSAA745-1	1.5	1	MSQ086-3	Kalkaska
ARS102400-2CPB	1.5	1		
MSL517-6	1.5	1	Atlantic	8380-1 chc, 4x
MSS543-2	1.5	1	Boulder	MSK214-1R
MST154-3	1.5	1	MSJ033-10Y	McBride
MSW111-1	1.5	1	MSL505-3	MSR061-1
MSW485-2	1.5	1	MSQ070-1	MSR156-7
MSX035-WP	1.5	1	Beacon Chipper	ARS10091WP
MSX042-3	1.5	1	Beacon Chipper	NY121
MSX142-2	1.5	1	Eva	MSQ176-5
MSX221-2	1.5	1	MSK061-4	MSR036-5
MSX255-1	1.5	1	MSM171-A	ARS10342-4
MSX506-3	1.5	1	MSQ176-5	MSR169-8Y
MSY022-2	1.5	1	MSS176-1	MST096-2Y
MSY042-1	1.5	1	MSJ147-1	Nicolet
MSY089-2	1.5	1	MSS176-1	B2731-2
MSY156-2	1.5	1	MSK061-4	Kalkaska
MSY434-1Y	1.5	1	Reba	MSQ440-2
MSY452-1	1.5	1	MSQ176-5	MSL211-3
MSY483-3	1.5	1	MSL505-3	MSN105-1
MSY517-8YSPL	1.5	1	Spartan Splash	Bison
MSY728-1	1.5	1	523-3-S7	84SD22
MSY733-1	1.5	1	MSL316-EY	84SD22
MSZ004-1	1.5	1	Atlantic	MSL211-3
MSZ063-02	1.5	1	MSR148-4	McBride
MSZ063-07Y	1.5	1	MSR148-4	McBride
MSZ069-11	1.5	1	Snowden	MSS297-3
MSZ092-2	1.5	1	Elkton	MSQ086-3
MSZ109-08PP	1.5	1	COMN07-W112BG1	MSU200-5PP
MSZ119-1	1.5	1	Kalkaska	M5
MSZ144-10Y	1.5	1	M5	McBride
MSZ189-3	1.5	1	Pike	MSS297-3
MSZ200-3	1.5	1	MSQ070-1	Lamoka
MSZ200-6	1.5	1	MSQ070-1	Lamoka
MSZ215-2	1.5	1	MSR058-1	MSQ086-3
MSZ268-1	1.5	1	MSU278-1Y	Pike
MSZ269-17	1.5	1	MSU278-1Y	MSR127-2
MSZ269-18	1.5	1	MSU278-1Y	MSR127-2
MSZ296-1Y	1.5	1	W6609-3	MSR127-2
MSZ407-7	1.5	1	Montanosa	Colonial Purple

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POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSZ428-1PP	1.5	1	MSQ461-2PP	MSS544-1R
MSZ433-3P	1.5	1	MSS483-1	MSU200-5PP
MSZ437-9RR	1.5	1	MSS576-05SPL	MST406-2RR
MSZ443-1PP	1.5	1	MSU200-5PP	NDTX4271-5R
MSZ513-2	1.5	1	MSL268-D	MSL211-3
MSZ537-4	1.5	1	MSL211-3	Chaposa
MSZ551-1	1.5	1	MSM182-1	MSL268-D
MSZ552-2P	1.5	1	MSM182-1	Colonial Purple
MSZ578-1Y	1.5	1	Nicola	Santa Ana
MSZ598-2	1.5	1	MSS576-05SPL	Superior
MSZ615-2	1.5	1	Sieglinde	MSL211-3
MSZ620-3	1.5	1	Muziranzara	MSL211-3
MSZ708-6	1.5	1	MSL316-EY	84SD22
MSZ709-03Y	1.5	1	MSM269-HORG	84SD22
MSZ709-04	1.5	1	MSM269-HORG	84SD22
MSZ749-3	1.5	1	MSP102-5	MSL505-3
MSZ502-7PP	1.5	1		
Manistee	1.8	5	Snowden	H098-2
MSAA014-1	2.0	1	Beacon Chipper	MSS297-3
MSAA018-2	2.0	1	MSJ147-1	Atlantic
MSAA057-2	2.0	1	MSP270-1	Lamoka
MSAA058-1	2.0	1	MSP270-1	MSS165-2Y
MSAA073-4	2.0	1	MSR127-2	MSM246-B
MSAA077-1	2.0	1	MSR169-8Y	AF4130-3
MSAA079-7Y	2.0	1	MSR169-8Y	Lamoka
MSAA079-8Y	2.0	1	MSR169-8Y	Lamoka
MSAA085-1	2.0	1	MSR169-8Y	MSV383-B
MSAA157-3PYPSpl	2.0	1	Spartan Splash	Purple Heart
MSAA168-8	2.0	1	MSU016-2	MSL211-3
MSAA169-6	2.0	1	MSU016-2	MSQ086-2
MSAA172-5	2.0	1	MSU016-2	MSV198-2Y
MSAA174-1	2.0	1	MSU161-1	MSQ440-2
MSAA193-3	2.0	1	MSW111-1	MSS297-3
MSAA196-6	2.0	1	MSW151-5	MSQ440-2
MSAA211-3	2.0	1	Atlantic	Kalkaska
MSAA218-5	2.0	1	Beacon Chipper	MSV313-1
MSAA231-1	2.0	1	Lamoka	Kalkaska
MSAA232-4	2.0	1	Lamoka	Manistee
MSAA240-3	2.0	1	MSM246-B	MSQ086-3
MSAA240-5	2.0	1	MSM246-B	MSQ086-3
MSAA252-1	2.0	1	NY148	MSQ089-1
MSAA255-10	2.0	1	MSQ035-3	Lamoka
MSAA256-3	2.0	1	MSQ070-1	Lamoka
MSAA267-4	2.0	1	MSQ279-1	Lamoka
MSAA277-3	2.0	1	Snowden	W6609-3
MSAA294-3	2.0	1	Accumulator	MSR127-2
MSAA342-02	2.0	1	MSJ042-3Y	MSR169-8Y
MSAA342-03	2.0	1	MSJ042-3Y	MSR169-8Y
MSAA460-2Y	2.0	1	MSR159-2	MSS165-2Y
MSAA472-1	2.0	1	MSS165-2Y	MSV358-3

Table 10

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2015 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2015 RATING	2015 N	FEMALE	MALE
<i>Sorted by ascending 2015 Rating;</i>				
MSAA513-1	2.0	1	MSV117-1	Lamoka
MSAA523-2	2.0	1	MSV127-1	Lamoka
MSAA541-4	2.0	1	MSV198-2Y	Pike
MSAA556-2	2.0	1	MSV284-1	McBride
MSAA556-3Y	2.0	1	MSV284-1	McBride
MSAA556-4Y	2.0	1	MSV284-1	McBride
MSAA570-03	2.0	1	MSV313-1	Lamoka
MSAA571-3Y	2.0	1	MSV313-1	MSR169-8Y
MSAA725-3	2.0	1	BNC182-5	MSS165-2Y
MSAA739-1	2.0	1	NYG86-1	MSS165-2Y
MSAA742-6	2.0	1	MSQ035-3	MSR127-2
Barbara	2.0	1		
Chloe Anwd	2.0	1		
MSL007-B	2.0	1	MSA105-1	MSG227-2
LT-7	2.0	1		
MSQ558-2RR	2.0	1	Rose Gold	POORPG2-16
MSR061-1	2.0	1	W1201	NY121
MSR186-3P	2.0	1	MN19525R	MSK034-1
MSS805-8	2.0	1	Atlantic	Mcr1-150
MSW128-2	2.0	1	MSM171-A	MSQ176-5
MSW501-5	2.0	1	Boulder	White Pearl
MSX009-2	2.0	1	ARS10241-2	Missaukee
MSX010-3	2.0	1	ARS10241-2	MSL211-3
MSX018-2	2.0	1	ARS10342-4	Pike
MSX050-1	2.0	1	Beacon Chipper	Nicolet
MSX137-6	2.0	1	Eva	MSL211-3
MSX150-1	2.0	1	MSH228-6	MSM246-B
MSX156-1Y	2.0	1	MSI005-20Y	Boulder
MSX293-1Y	2.0	1	MSM288-2Y	MSQ176-5
MSX324-2R	2.0	1	MSN105-1	Colonial Purple
MSX345-6Y	2.0	1	MSN191-2Y	McBride
MSX389-2	2.0	1	Lamoka	MSL268-D
MSX495-2	2.0	2	MSQ131-A	Kalkaska
MSX517-3SPL	2.0	1	Spartan Splash	MSQ176-5
MSX540-4	2.0	1	MSR061-1	Lamoka
MSX542-2	2.0	1	MSR102-3	Megachip
MSY008-3	2.0	1	MSP515-2	Manistee
MSY192-2PP	2.0	1	MSQ405-1PP	MSQ461-2PP
MSY193-1	2.0	1	MSQ279-1	B2731-2
MSY209-1	2.0	1	Pike	MSN170-A
MSY491-2Y	2.0	1	MSL183-AY	MSL211-3
MSY515-1	2.0	1	Reba	Haig Ind 98
MSY544-5R	2.0	1	Bison	MSS544-1R
MSY712-2Y	2.0	1	MSS703-5	84SD22

Table 11

2015 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	<i>Pedigrees go w/ RAUDPC Sort</i>	
						Female	Male
A01010-1 (Targhee Russet)	3	19.3	MSS487-2	3	0.0	Stirling	Missaukee
A01143-3C	3	19.0	MSV235-2PY	3	0.0	Malinche	Colonial Purple
A02267-1Y	3	17.0	MSV282-4Y	3	0.0	Monseratt	MSN105-1
A05182-7Y	3	11.5	MSV284-1	3	0.0	Monseratt	MSP239-1
AF3362-1Rus (Caribou Russet)	3	20.7	MSZ562-4	3	0.0	Muruta	MSL211-3
AF4648-2	3	10.2	MSZ609-1P	3	0.0	386056.17	Colonial Purple
AF4975-3	3	23.4	MSW242-5Y	3	0.0	NY121	Malinche
AF5320-1	3	23.2	ND6961B-21PY	3	0.0		
Atlantic	4	25.9	MSX398-2	2	0.2	Lamoka	Stirling
ATX91137-1Rus (Reveille Russet)	2	20.6	MSW092-1	3	0.2	MSL106-AY	Montserrat
AW07791-2Rus	2	12.0	MSS164-1	3	0.2	MSM188-1	Missaukee
Barbara	2	17.4	MSW464-3	3	0.3	MSM246-B	MSR102-3
BNC182-5	3	23.1	MSX198-5	3	0.5	Missaukee	OP
CO02343-3W	2	22.9	MSX293-1Y	2	0.6	MSM288-2Y	MSQ176-5
CO05037-3W/Y	2	26.7	MSW229-5P	3	0.6	Michigan Purple	MSN105-1
CO07102-1R	3	26.5	MSZ610-3	3	0.6	Chaposa	MSQ176-5
CO07370-1W/Y	3	12.7	MSW078-1	2	0.7	MSK409-1	Malinche
CO5068-1Rus	3	14.1	MSZ551-1	2	1.0	MSM182-1	MSL268-D
CW08071-2Rus	2	18.4	MSW324-01	3	1.0	MSQ070-1	Marcy
Dakota Ruby	3	22.3	MSZ219-46	3	1.1	MSR061-1	MSR127-2
Granola	3	14.8	MSZ454-1Y	3	1.4	Atlantic	Enfula
Lamoka	3	21.4	MSZ552-2P	2	1.5	MSM182-1	Colonial Purple
Maris Bard	3	21.5	MSX497-6	3	1.6	MSQ131-A	MSL268-D
Merlot	3	14.3	MSW042-1	3	1.6	MSI152-A	MSL211-3
MN10003PLWR-06R	3	23.9	MSW121-5R	3	1.7	MSM182-1	NDTX4271-5R
Molli	3	18.0	MSZ219-14	3	1.8	MSR061-1	MSR127-2
MSR061-1	3	3.6	MSZ436-2SPL	2	1.8	MSS576-05SPL	MSQ440-2
MSS164-1	3	0.2	MSZ702-1	3	1.8	CIP575045	84SD22
MSS487-2	3	0.0	QSMSU10-02	3	1.9	MSN106-2	MSL211-3
MSS576-5SPL	2	7.0	MSZ706-1	2	2.0	J138K6A22	MSV020-2
MST075-1R	2	24.0	MSZ409-1R	3	2.3	Muruta	MSR217-1R
MST386-1P	3	18.4	MSZ507-2	3	2.4	MSL211-3	NY121
MSU016-2	3	5.6	MSW100-1	3	3.1	LBR9	MSP292-7
MSU161-1	3	6.5	MSZ578-1Y	2	3.3	Nicola	Santa Ana
MSU198-01SPL	3	15.8	MSZ210-08	3	3.4	MSQ131-A	MSL211-3
MSU202-1P	3	22.4	MSR061-1	3	3.6	W1201	NY121
MSU245-1	3	10.3	MSX517-3SPL	3	3.6	Spartan Splash	MSQ176-5
MSU316-3PY	3	19.8	MSZ464-3	3	3.7	MSQ070-1	Alca Tarma
MSU379-1	3	20.5	MSZ157-3	3	4.1	NDU030-1	Missaukee
MSU383-A	2	20.3	MSZ513-2	6	4.3	MSL268-D	MSL211-3
MSV093-1	6	16.9	MSX540-4	3	4.6	MSR061-1	Lamoka
MSV111-1	3	15.2	MSZ705-3	2	4.7	HS66	BER83
MSV179-1	2	23.3	MSX507-1R	2	5.0	MSQ176-5	MSR219-2R
MSV235-2PY	3	0.0	MSY491-2Y	3	5.0	MSL183-AY	MSL211-3
MSV282-4Y	3	0.0	MSY520-1	3	5.4	MSQ440-2	MSN105-1
MSV284-1	3	0.0	MSZ218-5	3	5.6	MSR061-1	MSQ086-3
MSV301-2	3	24.3	MSU016-2	3	5.6	Boulder	MSN105-1
MSV393-1	2	20.0	MSW151-05	3	6.1	Montanosa	MSL211-3
MSV394-3	2	17.3	MSW360-18	3	6.1	MSR061-1	MSN238-A
MSV396-4Y	3	9.4	MSU161-1	3	6.5	MSM182-1	MSL211-3
MSV397-2	3	19.9	MSY452-1	3	6.5	MSQ176-5	MSL211-3
MSV505-2	1	16.9	MSW485-2	3	6.7	MSQ070-1	MSR156-7
MSW042-1	3	1.6	MSZ251-1	3	6.8	MSS070-B	Lamoka
MSW064-1	3	9.2	MSZ219-44	3	7.0	MSR061-1	MSR127-2
MSW078-1	2	0.7	MSS576-5SPL	2	7.0	MSI005-20Y	MSL211-3
MSW092-1	3	0.2	MSZ004-1	3	7.2	Atlantic	MSL211-3
MSW100-1	3	3.1	MSZ424-1R	2	7.6	NY121	MSR217-1R
MSW119-2	3	13.0	MSZ620-1	2	7.9	Muziranzara	MSL211-3
MSW121-5R	3	1.7	MSX542-2	3	7.9	MSR102-3	Megachip
MSW123-3	3	18.6	MSZ091-3	2	8.3	B1992-106	MSL211-3
MSW125-3	3	20.6	MSZ570-1	2	8.5	ND8331cb-3	MSL211-3

**2015 MSU LATE BLIGHT VARIETY TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>			<i>RAUDPC Sort:</i>				
LINE	N	RAUDPC ¹	LINE	N	RAUDPC ¹	<i>Pedigrees go w/ RAUDPC Sort</i>	
		MEAN			MEAN	Female	Male
MSW126-1	2	18.9	MSZ057-5	2	8.6	MSQ070-1	ND8334Cb-3
MSW134-1	2	22.8	MSW064-1	3	9.2	MSK061-4	MSR036-5
MSW151-05	3	6.1	MSW399-2	3	9.2	MSW2133-1	MSR036-5
MSW163-03	3	18.9	MSZ219-01	3	9.2	MSR061-1	MSR127-2
MSW168-2	3	15.9	MSZ547-3	3	9.2	MSL505-3	MSL211-3
MSW182-1Y	3	15.1	MSV396-4Y	3	9.4	MSQ070-1	McBride
MSW229-5P	3	0.6	MSX472-2	3	9.5	MSQ070-1	MSP292-7
MSW236-3	3	18.5	MSZ706-5	3	9.7	J138K6A22	MSV020-2
MSW237-4Y	3	14.8	NY154	3	9.7		
MSW242-5Y	3	0.0	AF4648-2	3	10.2		
MSW259-5	3	14.6	MSU245-1	3	10.3	NY132	MSP542-4
MSW298-4Y	1	12.1	MSW394-1	3	10.8	W2133-1	MSJ319-1
MSW299-2	3	13.4	MSZ616-1	3	10.9	Nicola	MSL211-3
MSW324-01	3	1.0	MSZ453-1	3	11.2	McBride	Alca Tarma
MSW326-6	3	19.4	MSX009-2	2	11.3	ARS10241-2	Missaukee
MSW353-3	3	17.6	A05182-7Y	3	11.5		
MSW360-18	3	6.1	AW07791-2Rus	2	12.0		
MSW394-1	3	10.8	MSW298-4Y	1	12.1	MSP102-5	MSL505-3
MSW399-2	3	9.2	VC1009-1W/Y	3	12.5		
MSW437-9	3	17.7	CO07370-1W/Y	3	12.7		
MSW464-3	3	0.3	MSW119-2	3	13.0	MSM171-A	MSR036-5
MSW485-2	3	6.7	MSZ219-29	3	13.1	MSR061-1	MSR127-2
MSW500-10	3	22.8	MSZ433-3P	3	13.2	MSS483-1	MSU200-5PP
MSW502-4	3	15.9	MSW299-2	3	13.4	MSP516-A	MSR061-1
MSW505-2	3	23.6	MSZ427-1R	2	14.0	MSQ440-2	NDTX4271-5R
MSW509-5	3	19.6	MSZ407-7	3	14.0	Montanosa	Colonial Purple
MSW537-6	3	15.7	CO5068-1Rus	3	14.1		
MSX001-4WP	2	22.3	Merlot	3	14.3		
MSX009-2	2	11.3	MSZ708-6	3	14.5	MSL316-EY	84SD22
MSX010-3	3	24.6	MSW259-5	3	14.6	MSN073-2	MSR159-2
MSX011-4	3	18.9	MSY008-3	3	14.7	MSP515-2	Manistee
MSX137-6	3	22.6	MSZ452-1	2	14.7	Atlantic	Chaposa
MSX196-1	3	15.0	Granola	3	14.8		
MSX198-5	3	0.5	MSW237-4Y	3	14.8	Montserrat	MSN191-2Y
MSX221-2	3	18.2	MSX196-1	3	15.0	Missaukee	Manistee
MSX255-1	2	22.4	MSW182-1Y	3	15.1	MSI005-20Y	POR02PG7-5
MSX293-1Y	2	0.6	MSV111-1	3	15.2	MSJ316-A	MSN105-1
MSX324-1P	5	19.2	ND7882b-7Russ	3	15.4		
MSX324-2R	1	18.8	MSY022-2	3	15.5	MSS176-1	MST096-2Y
MSX398-2	2	0.2	MSZ200-3	3	15.6	MSQ070-1	Lamoka
MSX472-2	3	9.5	MSW537-6	3	15.7	MSM070-1	MSP516-A
MSX495-2	2	23.4	MSU198-01SPL	3	15.8	MSN111-4PP	MSN105-1
MSX497-6	3	1.6	MSW168-2	3	15.9	Beacon Chipper	MSR159-2
MSX503-5	3	21.7	MSW502-4	3	15.9	CO95051-7W	Kalkaska
MSX506-3	3	19.6	MSV093-1	6	16.9	McBride	MSP408-14Y
MSX507-1R	2	5.0	MSV505-2	1	16.9	W2310-3	Missaukee
MSX517-3SPL	3	3.6	A02267-1Y	3	17.0		
MSX526-1	3	20.3	MSV394-3	2	17.3	MSQ070-1	MSH228-6
MSX540-4	3	4.6	Barbara	2	17.4		
MSX542-2	3	7.9	MSW353-3	3	17.6	MSR036-5	Marcy
MSY008-3	3	14.7	MSW437-9	3	17.7	Boulder	MSR036-5
MSY022-2	3	15.5	MSZ154-1	2	17.9	NDU022-1	MSQ086-3
MSY452-1	3	6.5	Molli	3	18.0		
MSY491-2Y	3	5.0	Snowden	6	18.0	Lenape	Wischip
MSY520-1	3	5.4	MSX221-2	3	18.2	MSK061-4	MSR036-5
MSZ004-1	3	7.2	CW08071-2Rus	2	18.4		
MSZ057-5	2	8.6	MST386-1P	3	18.4	Michigan Purple	Liberator
MSZ091-3	2	8.3	MSW236-3	3	18.5	Montanosa	MSR036-5
MSZ100-3	2	19.3	MSW123-3	3	18.6	MSM171-A	Dakota Diamond
MSZ154-1	2	17.9	MSZ615-1	3	18.7	386056.17	MSL211-3
MSZ157-3	3	4.1	MSX324-2R	1	18.8	MSN105-1	Colonial Purple
MSZ194-2	3	22.8	MSW126-1	2	18.9	MSM171-A	MSL268-D
MSZ200-3	3	15.6	MSW163-03	3	18.9	Atlantic	MSR036-5
MSZ210-08	3	3.4	MSX011-4	3	18.9	ARS10241-2	MSN105-1

**2015 MSU LATE BLIGHT VARIETY TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>			<i>RAUDPC Sort:</i>				
LINE	N	RAUDPC ¹	LINE	N	RAUDPC ¹	<i>Pedigrees go w/ RAUDPC Sort</i>	
		MEAN			MEAN	Female	Male
MSZ218-5	3	5.6	W9577-6Y	2	18.9		
MSZ219-01	3	9.2	A01143-3C	3	19.0		
MSZ219-11	3	19.2	MSZ219-11	3	19.2	MSR061-1	MSR127-2
MSZ219-14	3	1.8	MSX324-1P	5	19.2	MSN105-1	Colonial Purple
MSZ219-29	3	13.1	W9742-3Rus	2	19.2		
MSZ219-44	3	7.0	Oneida Gold	3	19.2		
MSZ219-46	3	1.1	W9433-1Rus	2	19.3		
MSZ251-1	3	6.8	MSZ100-3	2	19.3	Boulder	MSV477-5
MSZ300-1	3	20.3	A01010-1 (Targhee Russett)	3	19.3		
MSZ407-2Y	2	20.9	MSW326-6	3	19.4	MSQ070-1	MSN190-2
MSZ407-7	3	14.0	MSW509-5	3	19.6	Kalkaska	Marcy
MSZ409-1R	3	2.3	MSX506-3	3	19.6	MSQ176-5	MSR169-8Y
MSZ424-1R	2	7.6	MSU316-3PY	3	19.8	Liberator	MSL766-1
MSZ427-1R	2	14.0	MSV397-2	3	19.9	MSQ070-1	MSJ147-1
MSZ433-3P	3	13.2	MSV393-1	2	20.0	MSQ070-1	MSG227-2
MSZ436-2SPL	2	1.8	MSU383-A	2	20.3	MSP292-7	MSG227-2
MSZ452-1	2	14.7	MSZ300-1	3	20.3	W6822-3	MSU205-4
MSZ453-1	3	11.2	W5955-1	3	20.3		
MSZ454-1Y	3	1.4	MSX526-1	3	20.3	MSR036-5	Lamoka
MSZ464-3	3	3.7	MSU379-1	3	20.5	MSP238-1	Missaukee
MSZ507-2	3	2.4	ATX91137-1Rus (Reveille Russet)	2	20.6		
MSZ513-2	6	4.3	MSW125-3	3	20.6	MSM171-A	MSL211-3
MSZ547-3	3	9.2	AF3362-1Rus (Caribou Russet)	3	20.7		
MSZ551-1	2	1.0	MSZ407-2Y	2	20.9	Montanosa	Colonial Purple
MSZ552-2P	2	1.5	QSMSU10-15	3	21.0	MSN106-2	MSL211-3
MSZ562-4	3	0.0	MSZUNK-7	3	21.3		
MSZ570-1	2	8.5	Lamoka	3	21.4		
MSZ578-1Y	2	3.3	Reba	6	21.4		
MSZ609-1P	3	0.0	Maris Bard	3	21.5		
MSZ610-3	3	0.6	W10209-2R	2	21.6		
MSZ615-1	3	18.7	MSX503-5	3	21.7	MSQ176-5	MSL268-D
MSZ616-1	3	10.9	Soraya	3	21.7		
MSZ620-1	2	7.9	ND7818-1Y	3	21.9		
MSZ702-1	3	1.8	Russet Norkotah	3	21.9		
MSZ705-3	2	4.7	MSX001-4WP	2	22.3	ARS10091WP	MSL211-3
MSZ706-1	2	2.0	Dakota Ruby	3	22.3		
MSZ706-5	3	9.7	MSU202-1P	3	22.4	Colonial Purple	MSL211-3
MSZ708-6	3	14.5	W9519-3Rus	3	22.4		
MSZUNK-7	3	21.3	MSX255-1	2	22.4	M171-A	ARS10342-4
ND6961B-21PY	3	0.0	Pike	2	22.5	Allegany	Atlantic
ND7818-1Y	3	21.9	W9576-13Y	3	22.5		
ND7882b-7Rus	3	15.4	MSX137-6	3	22.6	Eva	MSL211-3
ND8068-5Rus	2	25.5	MSW134-1	2	22.8	Marcy	Dakota Diamond
NY154	3	9.7	MSW500-10	3	22.8	Boulder	MSP516-A
NY157	3	23.5	MSY194-2	3	22.8	MSQ035-3	MSU383-A
NYK28-18	3	23.8	QSMSU08-4	3	22.8	MSM037-3	MSL211-3
Oneida Gold	3	19.2	CO02343-3W	2	22.9		
Pike	2	22.5	Silverton Russet	3	22.9		
Purple Surprise 3	3	24.4	BNC182-5	3	23.1		
QSMSU08-4	3	22.8	AF5320-1	3	23.2		
QSMSU10-02	3	1.9	MSV179-1	2	23.3	LBR8	MSL211-3
QSMSU10-15	3	21.0	MSX495-2	2	23.4	MSQ131-A	Kalkaska
Reba	6	21.4	W9576-11Y	3	23.4		
Red Norland	3	25.5	AF4975-3	3	23.4		
Russet Norkotah	3	21.9	NY157	3	23.5		
Silverton Russet	3	22.9	MSW505-2	3	23.6	MSI005-20Y	MSL766-1
Snowden	6	18.0	NYK28-18	3	23.8		
Soraya	3	21.7	MN10003PLWR-06R	3	23.9		
VC1009-1W/Y	3	12.5	MST075-1R	2	24.0	Dakota Jewel	MSL211-3
W10209-2R	2	21.6	MSV301-2	3	24.3	MSN105-1	MSP197-1
W5955-1	3	20.3	Purple Surprise 3	3	24.4		
W9433-1Rus	2	19.3	MSX010-3	3	24.6	ARS10241-2	MSL211-3
W9519-3Rus	3	22.4	ND8068-5Rus	2	25.5		
W9576-11Y	3	23.4	Red Norland	3	25.5		

**2015 MSU LATE BLIGHT VARIETY TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

<i>Line Sort:</i>			<i>RAUDPC Sort:</i>				
LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹ Pedigrees go w/ RAUDPC Sort	
		MEAN				Female	Male
W9576-13Y	3	22.5		Atlantic	4	25.9	Waeson Lenape
W9577-6Y	2	18.9		CO07102-1R	3	26.5	
W9742-3Rus	2	19.2		CO05037-3W/Y	2	26.7	
HSD _{0.05}		10.8				10.8	

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

LB Isolate used: US-23

Table 12

2015 LATE BLIGHT EARLY GENERATION TRIAL
CLARKSVILLE RESEARCH CENTER, MI

<i>Line Sort:</i>			<i>RAUDPC Sort:</i>				
LINE	N	RAUDPC ¹ MEAN	LINE	N	RAUDPC ¹ MEAN	<i>Pedigrees go w/ RAUDPC Sort</i>	
						Female	Male
Atlantic	1	25.4	MSAA172-5	1	0.0	MSU016-2	MSV198-2Y
Atlantic	1	27.6	MSAA196-1	1	0.0	MSW151-5	MSQ440-2
Barbara	1	13.6	Chloe Anwd	1	0.0		
Chloe Anwd	1	0.0	VSB2186F-302-8	1	0.0		
LT-7	1	13.5	MSZ414-1RY	1	0.0	MSN230-1RY	Colonial Purple
MSAA011-1	1	20.4	MSZ436-2SPL	1	0.0	MSS576-05SPL	MSQ440-2
MSAA110-1	1	18.8	MSZ551-1	1	0.0	MSM182-1	MSL268-D
MSAA143-1	1	18.8	MSZ562-4	1	0.0	Muruta	MSL211-3
MSAA144-2	1	11.4	MSZ609-1P	1	0.0	386056.17	Colonial Purple
MSAA144-4	1	13.2	MSZ537-4	1	0.5	MSL211-3	Chaposa
MSAA169-3	1	15.8	MSZ210-08	1	0.7	MSQ131-A	MSL211-3
MSAA170-3Y	1	6.1	MSZ454-1Y	1	0.8	Atlantic	Enfula
MSAA172-5	1	0.0	MSZ513-2	1	1.3	MSL268-D	MSL211-3
MSAA173-3	1	3.1	MSZ552-2P	1	1.4	MSM182-1	Colonial Purple
MSAA194-2	1	25.2	NY121	1	1.7		
MSAA195-3	1	8.3	MSX293-1Y	1	1.7	MSM288-2Y	MSQ176-5
MSAA196-1	1	0.0	MSY515-1	1	1.7	Reba	Haig Ind 98
MSAA196-6	1	5.7	MSZ620-3	1	1.7	Muziranzara	MSL211-3
MSAA460-2Y	1	24.1	MSZ702-01	1	1.7	CIP575045	84SD22
MSAA468-4	1	26.0	MSZ578-1Y	1	2.2	Nicola	Santa Ana
MSAA513-1	1	16.2	MSZ215-2	1	2.4	MSR058-1	MSQ086-3
MSAA556-2	1	17.1	MSZ464-3	1	2.7	MSQ070-1	Alca Tarma
MSAA556-3Y	1	2.7	MSAA556-3Y	1	2.7	MSV284-1	McBride
MSAA556-4Y	1	20.3	MSZ610-3	1	2.9	Chaposa	MSQ176-5
MSV407-2	1	19.5	MSAA173-3	1	3.1	MSU161-1	MSQ086-3
MSW128-2	1	7.7	MSZ409-1R	1	3.3	Muruta	MSR217-1R
MSX196-1	1	14.3	MSZ263-4	1	3.6	MSU088-1	McBride
MSX221-2	1	18.9	MSZ705-3	1	3.9	HS66	BER83
MSX255-1	1	22.2	MSZ057-5	1	4.1	MSQ070-1	ND8334Cb-3
MSX293-1Y	1	1.7	MSZ510-4	1	4.6	MSL211-3	MSQ440-2
MSX324-1P	1	18.2	MSY507-2	1	4.9	Superior	MSL211-3
MSX324-2R	1	18.0	MSX496-2	1	5.6	MSQ131-A	MSL211-3
MSX495-2	1	6.1	MSAA196-6	1	5.7	MSW151-5	MSQ440-2
MSX496-2	1	5.6	MSAA170-3Y	1	6.1	MSU016-2	MSR157-1Y
MSY022-2	1	18.7	MSX495-2	1	6.1	MSQ131-A	Kalkaska
MSY041-1	1	30.0	MSZ706-1	1	6.3	J138K6A22	MSV020-2
MSY089-2	1	18.6	VSB16LBR8	1	6.5		
MSY452-1	1	12.8	MSZ547-3	1	6.8	MSL505-3	MSL211-3
MSY491-2Y	1	11.7	MSZ004-1	1	7.0	Atlantic	MSL211-3
MSY507-2	1	4.9	MSZ706-5	1	7.1	J138K6A22	MSV020-2
MSY515-1	1	1.7	Olalla	1	7.4		
MSY520-1	1	11.8	MSW128-2	1	7.7	MSM171-A	MSQ176-5
MSZ001-1	1	17.6	MSZ091-3	1	8.3	Elkton	MSL211-3
MSZ004-1	1	7.0	MSAA195-3	1	8.3	MSW151-5	MSQ176-5
MSZ057-5	1	4.1	MSZ218-5	1	8.6	MSR061-1	MSQ086-3
MSZ091-3	1	8.3	MSZ159-3	1	9.1	NDU030-1	MSV477-5
MSZ092-2	1	33.5	MSZ616-1	1	9.9	Nicola	MSL211-3

**2015 LATE BLIGHT EARLY GENERATION TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

Line Sort:

RAUDPC Sort:

LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹		Pedigrees go w/ RAUDPC Sort	
		MEAN				MEAN		Female	Male
MSZ100-3	1	17.3		MSZ251-1	1	10.4		MSS070-B	Lamoka
MSZ154-1	1	17.1		MSZ433-3P	1	10.4		MSS483-1	MSU200-5PP
MSZ159-3	1	9.1		MSZ424-1	1	11.2		NY121	MSR217-1R
MSZ200-6	1	14.3		MSAA144-2	1	11.4		MSR606-2	MSQ086-3
MSZ210-08	1	0.7		MSY491-2Y	1	11.7		MSL183-AY	MSL211-3
MSZ215-2	1	2.4		MSY520-1	1	11.8		MSQ440-2	MSN105-1
MSZ218-5	1	8.6		MSZ507-2	1	12.4		MSL211-3	NY121
MSZ251-1	1	10.4		MSY452-1	1	12.8		MSQ176-5	MSL211-3
MSZ263-4	1	3.6		MSAA144-4	1	13.2		MSR606-2	MSQ086-3
MSZ268-1	1	15.2		LT-7	1	13.5			
MSZ269-17	1	24.3		Barbara	1	13.6			
MSZ300-1	1	17.3		MSZ452-1	1	14.1		Atlantic	Chaposa
MSZ405-1PP	1	17.4		MSZ200-6	1	14.3		MSQ070-1	Lamoka
MSZ407-2Y	1	19.5		MSX196-1	1	14.3		Missaukee	Manistee
MSZ407-7	1	14.3		MSZ407-7	1	14.3		Montanosa	Colonial Purple
MSZ409-1R	1	3.3		MSZ570-1	1	14.5		ND8331cb-3	MSL211-3
MSZ414-1RY	1	0.0		MSZ427-1R	1	15.2		MSQ440-2	NDTX4271-5R
MSZ416-8RY	1	19.9		MSZ268-1	1	15.2		MSU278-1Y	Pike
MSZ424-1	1	11.2		MSZ708-6	1	15.4		MSL316-EY	84SD22
MSZ427-1R	1	15.2		MSAA169-3	1	15.8		MSU016-2	MSQ086-2
MSZ427-6R	1	25.9		MSAA513-1	1	16.2		MSV117-1	Lamoka
MSZ433-3P	1	10.4		MSZ613-1	1	16.5		386056.17	MSL211-3
MSZ436-2SPL	1	0.0		MSZ154-1	1	17.1		NDU022-1	MSQ086-3
MSZ452-1	1	14.1		MSAA556-2	1	17.1		MSV284-1	McBride
MSZ454-1Y	1	0.8		MSZ300-1	1	17.3		W6822-3	MSU205-4
MSZ464-3	1	2.7		MSZ100-3	1	17.3		Boulder	MSV477-5
MSZ507-2	1	12.4		MSZ405-1PP	1	17.4		MSM182-1	MSU200-5PP
MSZ510-4	1	4.6		MSZ001-1	1	17.6		1989-86061	Manistee
MSZ513-2	1	1.3		MSX324-2R	1	18.0		MSN105-1	Colonial Purple
MSZ537-4	1	0.5		MSX324-1P	1	18.2		MSN105-1	Colonial Purple
MSZ547-3	1	6.8		MSY089-2	1	18.6		MSS176-1	B2731-2
MSZ551-1	1	0.0		MSY022-2	1	18.7		MSS176-1	MST096-2Y
MSZ552-2P	1	1.4		MSAA143-1	1	18.8		MSR606-2	MSL211-3
MSZ562-4	1	0.0		MSAA110-1	1	18.8		Colonial Purple	MSR217-1R
MSZ570-1	1	14.5		MSX221-2	1	18.9		MSK061-4	MSR036-5
MSZ578-1Y	1	2.2		MSV407-2	1	19.5		MSQ070-1	MSP239-1
MSZ609-1P	1	0.0		MSZ407-2Y	1	19.5		Montanosa	Colonial Purple
MSZ610-3	1	2.9		MSZ416-8RY	1	19.9		MSN230-1RY	NDTX4271-5R
MSZ613-1	1	16.5		MSZ622-1	1	20.1		Satina	MSL211-3
MSZ615-2	1	20.9		MSAA556-4Y	1	20.3		MSV284-1	McBride
MSZ616-1	1	9.9		MSAA011-1	1	20.4		Beacon Chipper	MSR159-2
MSZ620-3	1	1.7		MSZ615-2	1	20.9		Sieglinde	MSL211-3
MSZ622-1	1	20.1		MSX255-1	1	22.2		MSM171-A	ARS10342-4
MSZ702-01	1	1.7		MSAA460-2Y	1	24.1		MSR159-2	MSS165-2Y
MSZ705-3	1	3.9		MSZ269-17	1	24.3		MSU278-1Y	MSR127-2
MSZ706-1	1	6.3		MSAA194-2	1	25.2		MSW151-5	MSL211-3
MSZ706-5	1	7.1		Atlantic	1	25.4		Wauseon	Lenape
MSZ708-6	1	15.4		MSZ738-2	1	25.7		MSL316-EY	MSP091-1
MSZ738-2	1	25.7		MSZ427-6R	1	25.9		MSQ440-2	NDTX4271-5R
NY121	1	1.7		MSAA468-4	1	26.0		MSR297-A	MSQ086-3

**2015 LATE BLIGHT EARLY GENERATION TRIAL
CLARKSVILLE RESEARCH CENTER, MI**

Line Sort:

RAUDPC Sort:

LINE	N	RAUDPC ¹		LINE	N	RAUDPC ¹		<i>Pedigrees go w/ RAUDPC Sort</i>	
		MEAN				MEAN		Female	Male
Olalla	1	7.4		Atlantic	1	27.6		Wauseon	Lenape
VS16LBR8	1	6.5		MSY041-1	1	30.0		Dakota Diamond	MSP368-1
VS2186F-302-8	1	0.0		MSZ092-2	1	33.5		Elkton	MSQ086-3

¹ Ratings indicate the average plot RAUDPC (Relative Area Under the Disease Progress Curve).
LB Isolate used: US-23

Table 13

MICHIGAN STATE UNIVERSITY
POTATO BREEDING and GENETICS2015 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									
W5955-1	1.084	22	2	1	0	0	0	88	0.2
AF5320-1	1.081	20	4	1	0	0	0	80	0.2
AF4975-3	1.083	18	7	0	0	0	0	72	0.3
MSV380-1	1.084	17	5	2	1	0	0	68	0.5
Lamoka	1.084	11	13	1	0	0	0	44	0.6
MSV358-3	1.081	14	7	4	0	0	0	56	0.6
NY157	1.084	15	7	2	0	1	0	60	0.6
MSV394-3	1.083	13	9	2	1	0	0	52	0.6
AF4648-2	1.086	12	9	2	2	0	0	48	0.8
MSV383-B	1.095	10	12	2	1	0	0	40	0.8
MSW509-5	1.082	12	7	6	0	0	0	48	0.8
FL1879	1.081	9	12	4	0	0	0	36	0.8
MSX398-2	1.078	11	10	1	3	0	0	44	0.8
MSV393-1	1.082	9	12	2	2	0	0	36	0.9
A01143-3C	1.080	10	8	6	1	0	0	40	0.9
MSV033-01	1.077	6	14	3	1	0	0	25	1.0
CO02343-3W	1.076	8	10	5	2	0	0	32	1.0
NYK28-18	1.096	5	12	7	1	0	0	20	1.2
MSW505-2	1.086	6	10	6	1	1	0	25	1.2
MSV507-056	1.091	5	10	7	2	1	0	20	1.4
NY154	1.087	8	6	6	3	1	1	32	1.4
MSW394-1	1.077	2	13	6	4	0	0	8	1.5
MSV030-4	1.089	3	5	6	3	0	0	18	1.5
Snowden	1.087	4	7	9	3	1	0	17	1.6
MSR127-2	1.084	6	7	6	2	2	2	24	1.7
MSW474-01	1.085	4	6	6	5	2	2	16	2.0
MSR061-1	1.085	4	4	7	7	2	1	16	2.1
Atlantic	1.092	1	9	5	6	3	1	4	2.2
MSV313-2	1.082	2	5	8	6	4	0	8	2.2
MSX540-4	1.088	0	5	6	6	4	4	0	2.8
RUSSET TRIAL									
MSY573-3Rus	1.065	19	6	0	0	0	0	76	0.2
A01010-1 (Targhee Russet)	1.076	19	5	1	0	0	0	76	0.3
Russet Norkotah	1.070	17	8	0	0	0	0	68	0.3
Silverton Russet	1.070	17	7	1	0	0	0	68	0.4
ATX91137-1Rus (Reveille)	1.069	16	8	1	0	0	0	64	0.4
AF3362-1Rus (Caribou)	1.075	14	8	2	1	0	0	56	0.6
W9433-1Rus	1.077	14	7	3	1	0	0	56	0.6
AW07791-2Rus	1.087	7	11	6	1	0	0	28	1.0
ND8068-5Rus	1.077	4	15	4	2	0	0	16	1.2
MSW496-1Rus	1.068	7	9	7	1	1	0	28	1.2
CO5068-1Rus	1.087	4	6	9	5	1	0	16	1.7
CW08071-2Rus	1.078	3	7	10	4	1	0	12	1.7
NCR									
ND7834-2P	1.076	25	0	0	0	0	0	100	0.0
ND7818-1Y	1.069	13	1	0	0	0	0	93	0.1
MN10003PLWR-06R	1.065	23	2	0	0	0	0	92	0.1
Russet Norkotah	1.072	23	2	0	0	0	0	92	0.1
MSW343-2R	1.059	23	0	1	0	0	0	96	0.1
AFW5472-1rus	1.068	22	3	0	0	0	0	88	0.1
Red LaSoda	1.065	23	1	1	0	0	0	92	0.1
Red Norland	1.062	22	3	0	0	0	0	88	0.1
W10114-3R	1.058	20	3	0	0	0	0	87	0.1

Table 13

2015 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	
Dark Red Norland	1.063	21	4	0	0	0	0	84	0.2
W9432-4R	1.051	21	4	0	0	0	0	84	0.2
MSV235-2PY	1.077	19	6	0	0	0	0	76	0.2
ND6961B-21PY	1.081	20	3	2	0	0	0	80	0.3
W10043-1rus	1.078	19	5	1	0	0	0	76	0.3
MSS576-5SPL	1.071	17	8	0	0	0	0	68	0.3
MSV093-1	1.076	17	7	1	0	0	0	68	0.4
W10209-2R	1.070	14	7	1	0	0	0	64	0.4
Yukon Gold	1.078	15	7	2	0	0	0	63	0.5
MSX324-1P	1.083	11	12	2	0	0	0	44	0.6
ND7982-1R	1.073	14	7	3	1	0	0	56	0.6
AFW5465-2rus	1.067	12	4	6	1	0	0	52	0.8
ND7882b-7Russ	1.076	11	8	5	1	0	0	44	0.8
MST386-1P	1.085	7	11	6	1	0	0	28	1.0
ND113300-3RSY	1.075	7	9	5	4	0	0	28	1.2
W10074-8rus	1.090	5	10	3	5	2	0	20	1.6
MSX540-4	1.090	4	6	6	5	4	0	16	2.0
ADAPTATION TRIAL, TABLESTOCK LINES									
MSW239-03SPL	1.056	21	4	0	0	0	0	84	0.2
MSX526-1	1.080	20	5	0	0	0	0	80	0.2
MSV093-1	1.073	16	9	0	0	0	0	64	0.4
McBride	1.080	16	8	1	0	0	0	64	0.4
MSV179-1	1.060	14	10	1	0	0	0	56	0.5
Red Norland	1.063	15	8	2	0	0	0	60	0.5
MSS576-5SPL	1.070	14	9	1	1	0	0	56	0.6
MSW299-2	1.072	17	3	3	1	1	0	68	0.6
MST252-1Y	1.069	10	14	0	1	0	0	40	0.7
Spartan Splash	1.072	12	8	5	0	0	0	48	0.7
Oneida Gold	1.079	10	12	1	2	0	0	40	0.8
Molli	1.068	7	13	5	0	0	0	28	0.9
Superior	1.070	10	8	4	3	0	0	40	1.0
MSV434-1Y	1.073	8	11	4	1	0	1	32	1.1
MSW151-05	1.067	7	10	7	1	0	0	28	1.1
MSW259-5	1.079	8	10	3	2	0	1	33	1.1
MSW075-1	1.081	6	8	8	2	0	1	24	1.4
Reba	1.074	3	11	8	3	0	0	12	1.4
MSX324-1P	1.079	5	7	7	3	1	2	20	1.8
MSV235-2PY	1.075	0	4	13	3	2	1	0	2.3
MSW134-1	1.072	1	5	5	7	3	3	4	2.6
PRELIMINARY TRIAL, CHIP-PROCESSING LINES									
MSW485-2	1.089	18	4	1	0	0	0	78	0.3
MSX198-5	1.079	18	7	0	0	0	0	72	0.3
MSS164-1	1.088	18	5	2	0	0	0	72	0.4
MSW248-02	1.087	17	7	1	0	0	0	68	0.4
MSZ194-2	1.087	18	5	1	1	0	0	72	0.4
MSX196-1	1.072	16	7	2	0	0	0	64	0.4
MSX156-2	1.071	15	8	2	0	0	0	60	0.5
MSW464-3	1.082	16	5	4	0	0	0	64	0.5
MSZ219-01	1.074	15	7	2	1	0	0	60	0.6
MSX345-6Y	1.088	11	12	2	0	0	0	44	0.6
MSV092-2	1.086	11	10	3	0	0	0	46	0.7
MSZ452-1	1.095	11	11	3	0	0	0	44	0.7
MSW502-3	1.079	12	8	5	0	0	0	48	0.7
MSX420-4Y	1.087	11	10	3	1	0	0	44	0.8
MSX495-2	1.084	13	6	5	1	0	0	52	0.8

Table 13

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POTATO BREEDING and GENETICS2015 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	
QSMSU10-15	1.092	11	9	5	0	0	0	44	0.8
MSX472-1	1.089	12	6	5	1	0	0	50	0.8
MSZ222-19	1.091	9	12	2	1	0	0	38	0.8
MSZ119-1	1.081	11	9	4	1	0	0	44	0.8
MSZ025-5	1.091	12	8	4	0	0	1	48	0.8
Pike	1.089	10	10	4	1	0	0	40	0.8
MSX410-12Y	1.086	8	13	3	0	1	0	32	0.9
MSY008-3	1.079	8	11	6	0	0	0	32	0.9
MSZ407-2Y	1.074	8	12	4	1	0	0	32	0.9
MSV284-1	1.078	10	7	7	0	1	0	40	1.0
MSV307-2	1.085	7	12	5	1	0	0	28	1.0
D. Diamond	1.084	9	10	4	0	2	0	36	1.0
MSW326-6	1.093	7	12	4	2	0	0	28	1.0
MSY022-2	1.077	11	8	2	3	0	1	44	1.0
Atlantic	1.089	9	8	4	1	0	1	39	1.0
MSX542-2	1.085	7	11	2	3	0	0	30	1.0
MSU383-A	1.074	12	5	4	3	0	1	48	1.1
MSZ300-1	1.085	10	7	5	1	2	0	40	1.1
MST186-1Y	1.083	6	10	8	1	0	0	24	1.2
MSW324-01	1.090	7	8	9	1	0	0	28	1.2
MSV335-1	1.077	7	10	5	2	1	0	28	1.2
MSW064-1	1.082	9	6	7	2	1	0	36	1.2
MSZ507-2	1.083	7	9	6	3	0	0	28	1.2
MSX129-1	1.085	4	13	6	2	0	0	16	1.2
MSZ159-3	1.081	6	8	9	2	0	0	24	1.3
MSZ280-7	1.078	8	7	6	3	1	0	32	1.3
MSV246-1	1.088	6	7	9	2	0	0	25	1.3
Beacon Chipper	1.078	5	10	7	3	0	0	20	1.3
MSU379-1	1.081	5	0	4	3	0	0	42	1.4
MSX245-2Y	1.086	3	13	6	2	0	1	12	1.4
MSW044-1	1.092	2	11	10	2	0	0	8	1.5
Snowden	1.084	5	8	8	2	1	1	20	1.6
MSX225-2	1.085	2	8	12	2	0	1	8	1.7
MSW168-2	1.089	4	10	5	1	3	2	16	1.8
MSX417-1	1.086	0	9	10	3	3	0	0	2.0
MSV507-143	1.088	3	5	8	7	1	1	12	2.0
MSW399-2	1.087	1	4	10	7	2	1	4	2.3
MSW537-6	1.095	0	5	6	7	3	4	0	2.8
MSX221-2	1.080	1	4	6	7	2	5	4	2.8
MSV507-129	1.093	0	1	0	5	6	13	0	4.2
PRELIMINARY TRIAL, TABLESTOCK LINES									
MSV111-1	1.073	24	0	0	0	0	0	100	0.0
MSY520-1	1.068	22	3	0	0	0	0	88	0.1
MSW500-10	1.072	22	2	1	0	0	0	88	0.2
MSW125-3	1.059	20	4	1	0	0	0	80	0.2
W9576-13Y	1.072	20	4	1	0	0	0	80	0.2
W9577-6Y	1.075	20	4	1	0	0	0	80	0.2
MSW353-3	1.076	18	7	0	0	0	0	72	0.3
Soraya	1.062	19	5	1	0	0	0	76	0.3
W9576-11Y	1.058	19	5	1	0	0	0	76	0.3
MSX497-6	1.069	16	8	0	0	0	0	67	0.3
Granola	1.067	16	9	0	0	0	0	64	0.4
MSW437-9	1.070	16	9	0	0	0	0	64	0.4
MSW068-4	1.074	15	9	0	0	0	0	63	0.4
MSV301-2	1.080	17	6	2	0	0	0	68	0.4
MSW556-1	1.073	16	8	1	0	0	0	64	0.4

Table 13

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POTATO BREEDING and GENETICS2015 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	
MSW569-2	1.077	16	8	1	0	0	0	64	0.4
MSW270-1	1.074	14	7	1	0	0	0	64	0.4
CO05037-3W/Y	1.073	14	10	0	0	0	0	58	0.4
QSMSU08-4	1.082	15	6	2	0	0	0	65	0.4
MSW123-3	1.062	16	5	3	0	0	0	67	0.5
VC1009-1W/Y	1.072	13	9	1	0	0	0	57	0.5
MSV502-5	1.076	14	10	1	0	0	0	56	0.5
MSW500-04	1.074	14	8	2	0	0	0	58	0.5
A02267-1Y	1.060	15	7	3	0	0	0	60	0.5
MST148-3	1.077	14	9	2	0	0	0	56	0.5
MSV292-1Y	1.065	14	9	2	0	0	0	56	0.5
MSX255-1	1.089	14	9	2	0	0	0	56	0.5
MSY491-2Y	1.072	14	7	3	0	0	0	58	0.5
CO07370-1W/Y	1.062	14	8	3	0	0	0	56	0.6
MSW119-2	1.075	13	10	2	0	0	0	52	0.6
MSW236-3	1.078	12	12	1	0	0	0	48	0.6
MST191-2Y	1.085	12	10	2	0	0	0	50	0.6
MST441-1	1.079	12	11	2	0	0	0	48	0.6
MSW042-1	1.077	14	7	4	0	0	0	56	0.6
MSW298-4Y	1.076	12	11	2	0	0	0	48	0.6
MSX156-1Y	1.068	16	6	0	3	0	0	64	0.6
MSY042-1	1.079	12	11	1	1	0	0	48	0.6
MSY452-1	1.062	10	14	1	0	0	0	40	0.6
MSX506-3	1.075	12	9	4	0	0	0	48	0.7
QSMSU10-02	1.074	12	9	3	1	0	0	48	0.7
MSX293-1Y	1.079	10	5	4	1	0	0	50	0.8
MSY111-1	1.076	8	14	2	1	0	0	32	0.8
MSV089-2	1.077	8	13	3	1	0	0	32	0.9
CalWhite	1.071	9	11	3	2	0	0	36	0.9
MST145-2	1.074	9	11	4	0	1	0	36	0.9
MSW126-1	1.078	3	5	3	0	0	0	27	1.0
MSV397-2	1.076	7	11	6	1	0	0	28	1.0
MSX172-7	1.084	8	9	7	1	0	0	32	1.0
Reba	1.078	7	11	6	1	0	0	28	1.0
Barbara	1.076	4	15	6	0	0	0	16	1.1
MSX137-6	1.073	6	11	8	0	0	0	24	1.1
MSU161-1	1.075	7	10	6	2	0	0	28	1.1
MSU245-1	1.090	6	12	5	2	0	0	24	1.1
MSX503-5	1.075	7	10	6	2	0	0	28	1.1
MSV016-2	1.090	9	7	6	2	1	0	36	1.2
MSX010-3	1.078	7	10	5	3	0	0	28	1.2
Superior	1.072	8	8	7	1	1	0	32	1.2
MSU016-2	1.090	8	7	5	3	1	0	33	1.3
A05182-7Y	1.076	8	6	4	6	0	0	33	1.3
MSX011-4	1.090	2	10	12	1	0	0	8	1.5
MST229-1	1.081	5	6	9	3	1	0	21	1.5
MSV282-4Y	1.083	2	10	10	3	0	0	8	1.6
MSV127-1	1.088	5	8	7	2	0	3	20	1.7
MSX009-2	1.083	3	8	9	4	0	1	12	1.7
MSW242-5Y	1.077	3	6	7	4	2	0	14	1.8
MST094-1	1.080	1	8	7	8	1	0	4	2.0
MSW237-4Y	1.082	0	6	6	9	1	2	0	2.5
USPB/SFA TRIAL CHECK SAMPLES (Not bruised)									
AF4648-2	1.079	20	1	0	0	0	0	95	0.0
CO03243-3W	1.070	22	2	0	0	0	0	92	0.1
Lamoka	1.077	21	3	0	0	0	0	88	0.1

Table 13

2015 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	
A00188-3C	1.079	21	2	1	0	0	0	88	0.2
AC01151-5W	1.072	20	4	0	0	0	0	83	0.2
AC03433-1W	1.068	20	4	0	0	0	0	83	0.2
Atlantic	1.081	20	3	1	0	0	0	83	0.2
Snowden	1.079	19	5	0	0	0	0	79	0.2
W6822-3	1.079	19	6	0	0	0	0	76	0.2
NY152	1.074	14	9	1	0	0	0	58	0.5
USPB/SFA TRIAL BRUISE SAMPLES									
A00188-3C	1.079	20	4	0	0	0	0	83	0.2
AF4648-2	1.079	19	5	0	0	0	0	79	0.2
AC03433-1W	1.068	18	6	0	0	0	0	75	0.3
AC01151-5W	1.072	16	7	1	0	0	0	67	0.4
CO03243-3W	1.07	14	10	0	0	0	0	58	0.4
Lamoka	1.077	10	9	3	1	0	0	43	0.8
Atlantic	1.081	10	10	3	0	0	1	42	0.9
NY152	1.074	10	9	3	2	0	0	42	0.9
Snowden	1.079	9	9	6	1	0	0	36	1.0
W6822-3	1.079	1	5	9	2	2	5	4	2.6
MSZ selections 2 x 20									
MSZ169-01	1.077	22	3	0	0	0	0	88	0.1
MSZ045-09	1.074	21	4	0	0	0	0	84	0.2
MSZ052-11	1.082	20	3	2	0	0	0	80	0.3
MSZ242-14	1.083	18	6	1	0	0	0	72	0.3
MSZ062-10	1.092	15	8	0	0	0	0	65	0.3
MSZ118-02	1.089	17	7	1	0	0	0	68	0.4
MSZ118-20	1.081	8	5	0	0	0	0	62	0.4
MSZ118-08	1.088	18	5	0	2	0	0	72	0.4
MSZ062-46	1.081	15	8	2	0	0	0	60	0.5
MSZ242-03	1.094	13	10	1	0	0	0	54	0.5
MSZ022-19	1.086	15	8	1	1	0	0	60	0.5
MSZ062-42	1.084	16	6	2	1	0	0	64	0.5
MSZ020-08	1.082	15	7	2	1	0	0	60	0.6
MSZ062-31	1.073	13	9	1	1	0	0	54	0.6
MSZ062-18	1.077	7	5	0	1	0	0	54	0.6
MSZ120-04	1.089	6	6	1	0	0	0	46	0.6
MSZ020-04	1.090	12	9	4	0	0	0	48	0.7
MSZ219-46	1.087	13	7	5	0	0	0	52	0.7
MSZ020-10	1.087	13	7	4	1	0	0	52	0.7
MSZ026-08	1.083	12	7	6	0	0	0	48	0.8
MSZ062-06	1.082	13	7	3	2	0	0	52	0.8
MSZ022-14	1.079	10	11	2	0	1	0	42	0.8
MSZ022-07	1.083	10	12	1	2	0	0	40	0.8
MSZ052-31	1.083	11	8	6	0	0	0	44	0.8
MSZ052-40	1.092	12	8	3	2	0	0	48	0.8
MSZ222-15	1.078	10	10	5	0	0	0	40	0.8
MSZ101-06	1.081	13	5	5	2	0	0	52	0.8
MSZ242-09	1.093	10	10	4	1	0	0	40	0.8
MSZ242-07	1.101	5	5	2	1	0	0	38	0.9
MSZ242-13	1.100	10	8	5	2	0	0	40	1.0
MSZ242-15	1.093	9	8	8	0	0	0	36	1.0
MSZ101-07	1.086	8	8	7	2	0	0	32	1.1
MSZ103-02	1.087	10	6	4	4	1	0	40	1.2
MSZ219-29	1.079	4	5	1	3	0	0	31	1.2
MSZ219-14	1.089	7	9	5	3	1	0	28	1.3
MSZ022-16	1.089	5	8	11	1	0	0	20	1.3

Table 13

2015 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	
MSZ242-12	1.092	6	7	8	4	0	0	24	1.4
MSZ052-14	1.085	3	10	6	6	0	0	12	1.6
MSZ096-02	1.088	5	10	3	3	4	0	20	1.6
MSZ096-03	1.081	2	9	11	2	1	0	8	1.6
Snowden	1.090	5	7	5	6	2	0	20	1.7
MSZ052-13	1.089	3	8	8	4	2	0	12	1.8
Atlantic	1.095	2	8	9	4	2	0	8	1.8
MSZ062-50	1.089	5	6	6	5	2	1	20	1.8
MSZ118-19	1.093	1	7	7	7	1	2	4	2.2

* 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 10/28-29/2015. The table is presented in ascending order of average number of spots per tuber.