

Table 1

ADVANCED CHIP-PROCESSING TRIAL  
MONTCALM RESEARCH CENTER  
May 7 to September 24, 2019 (140 days)  
DD Base 40°F 3211<sup>8</sup>

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	OTF SED <sup>3</sup>	PERCENT (%) TUBER QUALITY <sup>4</sup>						3-YR AVG	
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC	SCAB <sup>5</sup>	MAT <sup>6</sup>	BRUISE <sup>7</sup>	US#1
MSZ120-4	4	416	477	87	13	87	0	0	1.088	1.0	1.0	0	0	0	0	1.7	4.5	1.2	-
MSZ219-14	4	345	395	87	12	87	0	0	1.080	1.0	1.0	0	3	3	0	1.8	3.6	1.8	378
MSZ219-13	4	344	373	92	8	91	0	0	1.087	1.0	1.0	0	3	0	0	1.7	3.8	4.0	359
Lady Liberty (NY152)	4	317	407	78	21	77	0	1	1.082	1.0	1.0	0	0	0	0	1.8	3.3	1.2	394*
MSAA076-6	4	299	385	78	22	78	0	0	1.095	1.0	1.0	0	0	0	0	2.0	2.8	4.0	-
MSZ222-19	4	290	383	76	24	76	0	1	1.093	1.0	1.0	3	3	0	0	0.8	2.8	2.4	475
MSZ200-6	3	281	365	77	22	77	0	1	1.081	1.0	1.0	0	7	0	0	1.5	3.3	2.2	-
MSV498-1	4	280	345	81	18	81	0	0	1.082	1.0	1.0	0	23	0	0	1.2	3.0	2.0	341
MSZ242-09	4	273	347	78	22	78	0	0	1.100	1.0	1.0	0	3	0	0	1.5	3.3	1.7	315
MSZ101-7	4	272	316	86	14	86	0	0	1.087	1.0	1.0	0	0	0	0	1.3	3.9	2.5	-
MSX225-2	4	271	355	76	24	76	0	0	1.082	1.0	1.0	0	30	0	0	1.3	2.8	2.0	306*
MSZ200-3	4	254	298	85	14	85	0	1	1.076	1.0	1.0	3	0	0	0	2.0	3.9	1.3	-
MSZ052-13	4	254	304	83	17	83	0	0	1.087	1.0	1.0	0	0	0	0	0.8	2.8	2.9	-
MSZ020-10	4	245	299	82	18	82	0	0	1.094	1.0	1.0	0	3	0	0	1.8	3.8	4.6	-
MSZ219-01	4	238	274	86	10	86	0	4	1.085	1.0	1.0	0	0	0	0	0.5	2.4	1.2	369
Huron Chipper (MSW485-2)	4	230	315	73	27	73	0	0	1.087	1.5	2.0	3	3	0	3	2.0	3.3	1.6	389
<b>Lamoka</b>	<b>4</b>	<b>230</b>	<b>296</b>	<b>77</b>	<b>23</b>	<b>77</b>	<b>0</b>	<b>1</b>	<b>1.084</b>	<b>1.0</b>	<b>1.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.5</b>	<b>2.0</b>	<b>1.7</b>	<b>320</b>
<b>Atlantic</b>	<b>3</b>	<b>221</b>	<b>273</b>	<b>81</b>	<b>18</b>	<b>81</b>	<b>0</b>	<b>1</b>	<b>1.089</b>	<b>1.0</b>	<b>1.0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2.5</b>	<b>2.5</b>	<b>2.0</b>	<b>339</b>
MSZ242-13	3	218	265	82	16	81	1	1	1.105	1.0	1.0	0	3	0	0	1.3	3.2	3.2	271
Petoskey (MSV030-4)	4	198	284	69	30	69	0	1	1.090	1.0	1.0	0	3	3	0	1.8	2.6	1.6	-
BNC182-5	2	191	258	74	26	74	0	0	1.085	-	-	0	0	0	0	0.0	2.3	-	-
MSW044-1	4	189	298	64	36	64	0	0	1.089	1.0	1.0	0	3	0	0	1.5	3.4	1.7	272
MSX193-1Y	4	187	260	70	30	70	0	0	1.069	-	-	0	0	0	0	2.0	2.6	-	-
<b>Snowden</b>	<b>4</b>	<b>186</b>	<b>315</b>	<b>59</b>	<b>41</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>1.087</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>2.6</b>	<b>316</b>
Manistee	4	180	254	70	30	70	0	0	1.078	1.0	1.0	0	0	0	0	3.0	1.4	0.5	317
Mackinaw	4	177	278	63	35	63	0	2	1.096	1.0	1.0	0	10	3	0	1.5	3.3	3.2	272
MSZ052-14	3	166	252	63	36	63	0	1	1.083	1.0	1.0	0	0	0	0	1.3	2.5	2.3	280*
MSZ022-07	4	153	226	67	33	67	0	0	1.081	1.0	1.0	0	0	0	0	0.8	2.1	1.2	225*
B2869-29	2	109	201	54	46	54	0	0	1.085	-	-	0	0	0	0	3.3	1.8	1.8	-
MEAN		242	314						1.086							1.6	2.9	2.2	338
HSD <sub>0.05</sub>		131	129						0.007										

\* Two-Year Average

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

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

<sup>3</sup>SED: Stem End Defect, Based on Paul Bethke's (USDA/UWisconsin - Madison) 0 - 5 scale. 0 = no SED; 3 = significant SED; 5 = severe SED

<sup>4</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

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

<sup>6</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Plant Date: 5/7/19

Vine Kill: 9/11/19

Days from planting to vine kill: 127

<sup>8</sup>Enviroweather: Entrican Station. Planting to vine kill

Table 2

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

**RUSSET TRIAL**  
**MONTCALM RESEARCH CENTER**  
**May 07 to September 9, 2019 (125 days)**  
**DD Base 40°F 3056<sup>6</sup>**

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	PERCENT (%) TUBER QUALITY <sup>2</sup>					MAT <sup>4</sup>	BRUISE <sup>5</sup>	3-YR AVG
		US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC	SCAB <sup>3</sup>			US#1
ATX91137-1Rus (Reveille Russet)	4	274	322	85	10	85	0	5	1.075	0	23	0	0	2.0	2.6	0.9	-
<b>Silverton Russet</b>	<b>4</b>	<b>263</b>	<b>334</b>	<b>79</b>	<b>20</b>	<b>79</b>	<b>0</b>	<b>2</b>	<b>1.076</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0.5</b>	<b>3.1</b>	<b>1.3</b>	405
A071012-4BFRUS	4	262	349	75	20	75	0	5	1.097	25	13	0	0	3.2	3.5	2.2	289*
AO02183-2	4	235	303	77	17	77	0	6	1.090	20	15	0	0	2.7	3.6	2.0	-
Payette Russet	4	234	309	74	18	74	0	7	1.091	0	10	0	0	1.2	3.5	2.3	-
A07061-6RUS	4	217	312	70	26	70	0	4	1.075	0	8	0	0	2.8	3.0	1.6	329
AOR07781-5	4	162	228	71	22	71	0	7	1.083	8	15	0	0	0.5	2.1	1.2	-
POR06V12-3 (Castle Russet)	4	147	219	67	32	67	0	2	1.088	8	5	0	0	1.5	2.6	0.9	-
TX08352-5Rus (Vanguard)	4	146	229	64	34	64	0	2	1.066	0	3	0	0	1.3	1.0	1.6	172
<b>Goldrush Russet</b>	<b>4</b>	<b>137</b>	<b>269</b>	<b>51</b>	<b>45</b>	<b>51</b>	<b>0</b>	<b>4</b>	<b>1.068</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>0.8</b>	<b>1.1</b>	<b>0.9</b>	264
<b>Russet Norkotah / Texas 112</b>	<b>4</b>	<b>102</b>	<b>218</b>	<b>47</b>	<b>50</b>	<b>47</b>	<b>0</b>	<b>3</b>	<b>1.070</b>	<b>3</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>2.2</b>	<b>1.0</b>	<b>0.8</b>	<b>280</b>
MEAN		198	281						1.080					1.7	2.5	1.4	290
HSD <sub>0.05</sub>		90	79						0.007								

\* Two-Year Average

<sup>1</sup>SIZE: B: <4 oz.; A: 4-10 oz.; OV: >10 oz.; PO: Pickouts.<sup>2</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.<sup>3</sup>SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.<sup>4</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).<sup>5</sup>BRUISE: Simulated blackspot bruise test average number of spots per tuber.<sup>6</sup>Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/7/19

Vine Kill: 9/4/19

Days from planting to vine kill: 120

Table 3

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICSADAPTATION TRIAL, TABLESTOCK LINES  
MONTCALM RESEARCH CENTER  
May 07 to September 9, 2019 (125 days)  
DD Base 40°F 3056<sup>6</sup>

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>							
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB <sup>3</sup>	MAT <sup>4</sup>	BRUISE <sup>5</sup>
MSX156-1Y	4	397	410	97	3	96	1	0	1.070	0	3	0	0	2.7	3.0	1.9
MSV093-1Y	3	366	395	92	7	92	0	1	1.074	0	10	0	0	1.2	3.7	0.2
MSAA196-06	4	350	463	75	22	75	0	3	1.068	0	5	0	0	2.3	3.1	1.4
MSZ551-1	4	348	379	92	7	90	2	1	1.080	0	23	0	0	1.8	3.0	1.7
MSX245-2Y (Chip)	4	303	347	87	13	87	0	0	1.084	0	20	0	0	2.0	3.4	2.5
MSV443-1PP	4	287	371	78	22	78	0	0	1.063	0	0	0	0	1.3	2.3	0.4
MSZ416-08RY	4	286	329	87	13	87	0	0	1.065	0	18	0	0	1.0	2.0	0.8
MSV179-1	4	272	293	93	6	93	0	1	1.071	0	3	0	0	1.5	2.9	0.7
MSAA174-1	4	260	311	84	15	84	0	1	1.062	0	60	3	0	1.5	2.9	1.3
<b>Yukon Gold</b>	<b>4</b>	<b>247</b>	<b>278</b>	<b>89</b>	<b>11</b>	<b>89</b>	<b>0</b>	<b>0</b>	<b>1.076</b>	<b>0</b>	<b>35</b>	<b>0</b>	<b>3</b>	<b>3.0</b>	<b>1.1</b>	<b>0.5</b>
MSZ107-01PP	4	234	404	58	42	58	0	0	1.080	0	0	0	0	1.3	5.0	-
Blackberry (MSZ109-10PP)	4	222	363	61	39	61	0	0	1.066	0	0	0	0	1.2	3.1	0.4
MSAA157-2PY	4	218	311	70	30	70	0	0	1.071	0	8	0	0	3.2	3.5	0.8
MST252-1Y	4	175	256	68	30	68	0	2	1.067	0	15	0	0	1.7	1.3	1.2
MSX497-6	4	169	186	91	9	91	0	0	1.067	0	0	0	0	2.2	1.8	1.4
<b>Dark Red Norland</b>	<b>4</b>	<b>169</b>	<b>248</b>	<b>68</b>	<b>32</b>	<b>68</b>	<b>0</b>	<b>0</b>	<b>1.060</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>1.2</b>	<b>1.0</b>	<b>0.7</b>
<b>Superior</b>	<b>4</b>	<b>163</b>	<b>227</b>	<b>72</b>	<b>27</b>	<b>72</b>	<b>0</b>	<b>1</b>	<b>1.069</b>	<b>0</b>	<b>35</b>	<b>3</b>	<b>5</b>	<b>1.7</b>	<b>1.0</b>	<b>0.8</b>
Pike (Chip)	4	156	223	70	30	70	0	1	1.085	0	8	0	0	1.5	2.3	0.8
MSX324-2R	4	148	215	69	29	69	0	2	1.069	0	8	0	3	1.5	1.4	0.7
MSX324-1P	4	141	240	59	40	59	0	1	1.082	0	0	0	0	1.0	1.0	<b>0.7</b>
MSZ598-2	4	135	190	69	31	69	0	0	1.068	0	33	0	0	1.5	1.5	0.6
MSAA182-3R	4	121	250	48	52	48	0	0	1.078	0	10	0	0	1.7	3.5	0.4
Isle Royale (MSX569-1R)	4	109	184	61	38	61	0	1	1.048	0	15	0	0	2.0	1.0	0.2
Queen Anne	4	66	241	26	74	26	0	0	1.060	0	5	0	0	1.8	1.1	0.8
MEAN		223	296						1.070					1.7	2.3	0.9
HSD <sub>0.05</sub>		128	131						0.005							

<sup>1</sup>SIZE: B: <2 in.; A: 2-3.25 in.; OV: > 3.25 in.; PO: Pickouts.<sup>2</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.<sup>3</sup>SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.<sup>4</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).<sup>5</sup>BRUISE: Simulated blackspot bruise test average number of spots per tuber.<sup>6</sup>Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/7/19

Vine Kill: 9/4/19

Days from planting to vine kill: 120



**Table 4**

**PRELIMINARY TRIAL, CHIP-PROCESSING LINES  
 MONTCALM RESEARCH CENTER  
 May 7 to September 25, 2019 (141 days)  
 DD Base 40°F 3211<sup>8</sup>**

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					SP GR	CHIP SCORE <sup>2</sup>	OTF SED <sup>3</sup>	PERCENT (%) TUBER QUALITY <sup>4</sup>				SCAB <sup>5</sup>	MAT <sup>6</sup>	BRUISE <sup>7</sup>
		US#1	TOTAL	US#1	Bs	As	OV	PO				HH	VD	IBS	BC			

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

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

<sup>3</sup>SED: Stem End Defect, Based on Paul Bethke's (USDA/UWisconsin - Madison) 0 - 5 scale. 0 = no SED; 3 = significant SED; 5 = severe SED

<sup>4</sup>QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot. Percent of 40 Oversize and/or A-size tubers cut.

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

<sup>6</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

<sup>7</sup>BRUISE: Simulated blackspot bruise test average number of spots per tuber.

Plant Date: 5/7/19

Vine Kill: 9/11/19

Days from planting to vine kill: 127

<sup>8</sup>Enviroweather: Entrican Station. Planting to vine kill

Table 5

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

**PRELIMINARY TRIAL, TABLESTOCK LINES**  
**MONTCALM RESEARCH CENTER**  
**May 7 to September 16, 2019 (132 days)**  
**DD Base 40°F 3056<sup>6</sup>**

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>							
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB <sup>3</sup>	MAT <sup>4</sup>	BRUISE <sup>5</sup>
MSY022-02	2	423	441	96	4	89	7	0	1.079	5	5	5	0.0	1.2	4.0	1.0
White Beauty	2	365	439	83	16	83	0	1	1.077	0	20	0	0.0	2.0	4.0	0.6
MSZ407-7	2	363	438	83	16	83	0	1	1.081	0	5	0	0.0	1.5	4.0	1.5
MSZ169-1	2	338	378	89	9	89	0	1	1.080	0	0	0	0.0	0.8	4.3	2.0
<b>Onaway</b>	<b>2</b>	<b>311</b>	<b>346</b>	<b>90</b>	<b>8</b>	<b>90</b>	<b>0</b>	<b>2</b>	<b>1.062</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0.0</b>	<b>2.5</b>	<b>1.0</b>	<b>1.0</b>
MSBB375-1	2	307	355	86	13	86	0	1	1.084	0	30	0	0.0	1.8	3.0	0.6
MSAA085-1	2	302	351	86	13	86	0	1	1.080	0	45	0	0.0	1.8	3.0	0.6
MSZ242-07	2	269	315	85	15	85	0	0	1.101	0	0	0	0.0	1.3	3.8	2.5
Harmony	2	257	356	72	24	72	0	4	1.062	0	0	0	0.0	2.2	3.0	0.1
<b>Reba</b>	<b>2</b>	<b>256</b>	<b>287</b>	<b>89</b>	<b>11</b>	<b>89</b>	<b>0</b>	<b>0</b>	<b>1.076</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>2.5</b>	<b>2.5</b>	<b>1.3</b>
MSX526-1	2	235	291	81	19	81	0	0	1.080	0	10	0	0.0	1.2	2.8	0.4
MSBB364-1	2	235	254	92	5	91	1	3	1.059	0	0	0	0.0	1.3	3.3	0.2
Obama	2	232	325	72	28	72	0	0	1.064	0	35	0	0.0	1.8	1.3	0.9
NY162	2	228	275	83	16	83	0	1	1.083	0	0	0	0.0	2.2	3.0	2.1
Nadine	2	214	367	58	41	58	0	0	1.060	0	0	10	0.0	2.7	1.8	0.6
MSZ615-2	2	210	253	83	17	83	0	0	1.069	0	10	0	0.0	1.2	1.3	1.0
MSZ513-2	2	191	219	87	13	87	0	0	1.067	0	15	0	0.0	1.7	1.8	0.7
<b>Yukon Gold</b>	<b>2</b>	<b>188</b>	<b>216</b>	<b>87</b>	<b>12</b>	<b>87</b>	<b>0</b>	<b>1</b>	<b>1.072</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0.0</b>	<b>3.0</b>	<b>1.3</b>	<b>0.5</b>
NY149	2	186	278	67	33	67	0	0	1.075	0	75	0	0.0	1.8	3.3	0.4
Fioretta	2	169	336	51	44	51	0	4	1.067	0	25	0	0.0	2.5	3.0	1.5
MSBB719-1	2	167	301	55	45	55	0	0	1.068	0	0	0	0.0	2.2	1.5	1.0
MSDD085-13	2	153	230	67	33	67	0	0	1.085	0	20	0	0.0	1.3	2.3	1.6
MSZ101-6	2	119	224	53	47	53	0	0	1.082	0	0	0	0.0	1.3	4.0	0.9
W8893-1R	2	59	186	32	68	32	0	0	1.059	0	10	0	0.0	1.0	1.0	0.6
MEAN		241	311						1.074					1.8	2.7	1.0
HSD <sub>0.05</sub>		120	152						0.008							

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

**Table 5**

**PRELIMINARY TRIAL, TABLESTOCK LINES  
 MONTCALM RESEARCH CENTER  
 May 7 to September 16, 2019 (132 days)  
 DD Base 40°F 3056<sup>6</sup>**

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>					SCAB <sup>3</sup>	MAT <sup>4</sup>	BRUISE <sup>5</sup>
	N	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS			

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

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

<sup>4</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

<sup>5</sup>BRUISE: Simulated blackspot bruise test average number of spots per tuber.

<sup>6</sup>Enviroweather: Entrican Station. Planting to vine kill

Plant Date: 5/7/19

Vine Kill: 9/4/19

Days from planting to vine kill: 120

Table 6

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

**PRELIMINARY TRIAL, PIGMENTED LINES**  
**MONTCALM RESEARCH CENTER**  
**May 7 to September 16, 2019 (132 days)**  
**DD Base 40°F 3056<sup>6</sup>**

LINE	N	CWT/A		PERCENT OF TOTAL <sup>1</sup>					PERCENT (%) TUBER QUALITY <sup>2</sup>							
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS	BC	SCAB <sup>3</sup>	MAT <sup>4</sup>	Bruise <sup>5</sup>
MSBB213-1Spl	2	389	440	88	12	88	0	0	1.077	0	30	0	0	1.3	3.5	1.0
MSBB305-2SPL	2	362	429	84	16	84	0	0	1.062	0	10	0	0	1.5	3.0	0.5
MSZ443-01PP	2	319	409	78	22	78	0	0	1.065	0	0	0	0	1.5	2.3	0.3
MSBB308-2PP	2	251	305	82	18	82	0	0	1.061	0	5	0	0	1.2	1.5	0.2
MSCC553-1R	2	243	277	88	11	88	0	1	1.076	5	5	0	0	2.0	3.3	0.6
MSAA161-04RY	2	242	307	78	20	78	0	2	1.079	0	0	0	0	1.3	3.5	0.6
MSZ107-06PP	2	234	413	57	42	57	0	1	1.076	0	0	0	5	2.3	3.0	0.5
Dark Red Norland	2	222	314	71	29	71	0	0	1.058	0	0	0	0	1.2	1.0	0.2
MSBB371-1SPL	2	218	309	70	30	70	0	0	1.071	0	0	0	0	1.8	1.8	0.6
MSAA127-1PP	2	212	273	78	22	78	0	0	1.054	0	0	0	0	2.5	1.8	1.1
MSAA706-7PP	2	202	243	83	17	83	0	0	1.063	0	0	0	0	1.3	2.5	1.1
NDAF113484B-1	2	182	249	73	27	73	0	0	1.058	0	0	0	0	2.2	1.0	0.4
MSBB262-1YSpl	2	182	300	61	38	61	0	1	1.067	0	0	0	0	2.5	1.3	0.1
MSZ427-03R	2	181	270	67	33	67	0	0	1.049	0	0	0	0	1.3	1.0	0.5
MSAA161-01RY	2	176	294	60	29	60	0	11	1.068	0	0	0	0	0.7	1.8	1.5
MSZ413-6P	2	159	274	58	39	58	0	3	1.070	0	0	0	0	1.8	1.8	0.7
MSAA127-7PP	2	154	257	59	41	59	0	0	1.054	0	0	0	0	1.8	1.8	0.0
MSBB238-01RY	2	148	268	55	44	55	0	0	1.059	0	10	0	0	0.8	1.0	0.5
MSAA101-1RR	2	145	275	53	47	53	0	0	1.078	0	0	0	0	0.8	2.0	0.3
Red Sunset	2	138	276	50	50	50	0	0	1.060	0	0	0	0	2.2	1.0	0.6
MSX443-3P (mini)	2	137	307	45	55	45	0	0	1.081	0	0	0	0	2.0	4.0	0.7
MSZ109-07PP	2	103	214	48	51	48	0	2	1.060	0	0	0	0	1.5	3.3	0.5
MSZ427-01R	2	90	237	38	62	38	0	0	1.062	0	0	0	0	0.7	1.0	0.5
MSZ413-7PP	2	80	169	47	53	47	0	0	1.063	0	0	0	0	1.5	1.5	0.3
MSCC282-01WR	2	72	183	39	61	39	0	0	1.073	0	0	0	0	3.2	2.0	0.7
MSZ107-02PP	2	58	186	31	68	31	0	1	1.075	0	0	0	0	1.8	3.3	0.9
MSBB270-1Spl	2	43	204	21	79	21	0	0	1.070	0	10	0	0	2.0	1.0	0.6
MEAN		183	284						1.066					1.7		0.6



**Table 6**

**PRELIMINARY TRIAL, PIGMENTED LINES  
MONTCALM RESEARCH CENTER  
May 7 to September 16, 2019 (132 days)  
DD Base 40°F 3056<sup>6</sup>**

LINE	CWT/A		PERCENT OF TOTAL <sup>1</sup>				PERCENT (%) TUBER QUALITY <sup>2</sup>						SCAB <sup>3</sup>	MAT <sup>4</sup>	Bruise <sup>5</sup>	
	N	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH	VD	IBS				BC
HSD <sub>0.05</sub>		131	146							0.014						

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

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

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

Plant Date: 5/7/19

<sup>4</sup>MATURITY RATING: August 20, 2019; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Vine Kill: 9/4/19

<sup>5</sup>BRUISE: Simulated blackspot bruise test, average number of spots per tuber.

Days from planting to vine kill: 120

<sup>6</sup>Enviroweather: Entrican Station. Planting to vine kill

Table 7

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
<i>Sorted by ascending 2019 Average Rating;</i>										
AOR07781-5	-	0.3	0.5	3						
MSZ219-01 <sup>PVYR</sup>	0.7	0.5	0.5	3	0.5	0.5	3	1.0	1.5	3
<b>Silverton Russet</b>	<b>0.8*</b>	<b>0.5</b>	<b>0.5</b>	<b>3</b>	<b>1.2</b>	<b>1.5</b>	<b>3</b>			
<b>Goldrush Russet</b>	<b>0.8</b>	<b>0.7</b>	<b>1.0</b>	<b>3</b>	<b>0.3</b>	<b>0.5</b>	<b>3</b>	<b>1.5</b>	<b>2.0</b>	<b>3</b>
MSAA161-1PY	1.2*	0.7	1.0	3	1.7	2.0	3			
MSZ052-13	-	0.7	1.0	3						
MSZ219-13 <sup>PVYR</sup>	0.7	0.7	1.0	3	0.8	1.0	3	0.5	0.5	3
MSZ427-1R	0.9*	0.7	1.5	3	1.2	1.5	3			
MSBB020-8	-	0.8	1.0	2						
MSZ022-07	1.0	0.8	1.0	2	1.2	2.0	3	1.0	2.0	3
MSAA101-1RR	0.7*	0.8	1.5	3	0.5	0.5	3			
MSBB238-01RY	-	0.8	1.0	3						
MSZ169-1	-	0.8	1.5	3						
MSZ219-14 <sup>PVYR</sup>	0.8	0.8	1.5	3	0.8	1.0	3	0.7	1.0	3
MSZ222-19	0.9	0.8	1.0	3	1.2	1.5	3	0.8	1.0	3
MSAA392-03	-	1.0	1.5	3						
MSBB038-01	-	1.0	1.5	3						
MSBB613-07	-	1.0	1.0	2						
MSZ416-08RY	-	1.0	1.5	3						
W8893-1R	-	1.0	2.0	3						
Blackberry (MSZ109-10PP)	1.3	1.2	1.5	3	1.2	1.5	3	1.7	3.0	3
<b>Dark Red Norland</b>	<b>1.3</b>	<b>1.2</b>	<b>2.0</b>	<b>6</b>	<b>1.3</b>	<b>1.5</b>	<b>6</b>	<b>1.4</b>	<b>2.0</b>	<b>6</b>
MSAA036-01	-	1.2	1.5	6						
MSBB018-1	-	1.2	1.5	3						
MSBB308-2P	-	1.2	1.5	3						
MSBB610-24Y	-	1.2	1.5	3						
MSBB635-14	-	1.2	1.5	3						
MSV093-1Y	1.4*	1.2	1.5	3	1.7	2.0	3			

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**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
MSV498-1	1.4	1.2	2.0	3	1.8	2.0	3	1.2	1.5	3
MSX194-3	1.2*	1.2	1.5	3	1.2	1.5	3			
MSX324-2R	1.6*	1.2	2.0	3	2.0	2.0	3			
MSX526-1	-	1.2	1.5	3						
MSY022-02	-	1.2	1.5	3						
MSZ242-13	1.3	1.2	1.5	3	1.3	1.5	3	1.5	2.0	3
MSZ615-2	1.3	1.2	1.5	3	1.7	2.0	3	1.2	1.5	3
MSZ709-14	-	1.2	2.0	3						
Payette Russet	-	1.2	1.5	3						
MSBB213-1Spl	-	1.3	1.5	2						
MSX225-2	1.3	1.3	1.5	2	1.5	2.0	3	1.2	1.5	3
MSX472-2	1.3*	1.3	1.5	2	1.3	2.0	3			
MSZ101-6	-	1.3	1.5	2						
MSAA061-7	1.3*	1.3	1.5	3	1.2	1.5	3			
MSAA161-4RY	1.1*	1.3	1.5	3	0.8	1.0	3			
MSAA706-7PP	1.6*	1.3	1.5	3	1.8	3.0	3			
MSBB079-2	-	1.3	1.5	3						
MSBB364-1	-	1.3	1.5	3						
MSDD085-13	-	1.3	2.0	3						
MSV030-4	-	1.3	2.0	3						
MSV443-1PP	1.4*	1.3	1.5	3	1.5	2.0	3			
MSW119-2	1.3*	1.3	1.5	3	1.3	1.5	3			
MSX324-1P	1.0	1.3	1.5	3	0.8	1.0	3	0.8	1.5	6
MSZ052-14	1.4*	1.3	1.5	3	1.5	2.0	3			
MSZ101-7	-	1.3	1.5	1						
MSZ107-01PP	1.1	1.3	1.5	3	1.0	1.0	3	1.0	1.5	3
MSZ242-07	1.4	1.3	1.5	3	1.5	2.0	3	<b>1.3</b>	2.0	3
MSZ407-7Y	-	1.3	1.0	3						
MSZ427-3R	1.7*	1.3	2.0	3	2.0	2.5	3			

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**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
MSZ590-1	1.2	1.3	1.5	3	1.0	1.0	3	1.3	1.5	3
Vanguard (TX08352-5Rus)	1.5	1.3	1.5	3	1.8	2.5	3	1.3	1.5	3
Castle Russet	-	1.5	2.0	3						
<b>Lamoka</b>	<b>1.7</b>	<b>1.5</b>	<b>2.0</b>	<b>3</b>	<b>2.0</b>	<b>2.5</b>	<b>3</b>	<b>1.7</b>	<b>2.0</b>	<b>3</b>
Mackinaw (MSX540-4) <sup>PVYR, LBR</sup>	1.8	1.5	2.0	3	1.8	2.0	3	2.2	2.5	3
MSAA174-1	1.5*	1.5	1.5	3	1.5	2.0	3			
MSAA228-1Y	1.8*	1.5	2.0	3	2.0	2.5	3			
MSBB058-04	-	1.5	1.5	3						
MSBB165-1	-	1.5	2.0	3						
MSBB210-A	-	1.5	1.5	3						
MSBB305-2SPL	-	1.5	1.5	2						
MSBB634-8	-	1.5	2.0	3						
MSV179-1	1.6	1.5	2.0	2	1.5	1.5	1	1.8	2.0	3
MSW044-1	1.6*	1.5	1.5	3	1.7	2.0	3			
MSX398-2	1.7*	1.5	2.5	3	1.8	2.0	3			
MSZ109-07PP	1.7*	1.5	2.0	3	1.8	2.0	3			
MSZ200-6	1.6*	1.5	2.0	3	1.7	2.0	3			
MSZ242-09	1.3	1.5	1.5	2	0.7	1.0	3	1.7	2.0	3
MSZ413-07PP	-	1.5	1.5	3						
MSZ443-1PP	1.5	1.5	2.0	3	2.2	2.5	3	0.8	1.5	3
MSZ598-2	1.5*	1.5	2.0	3	1.5	2.0	3			
<b>Pike</b>	<b>1.3</b>	<b>1.5</b>	<b>2.0</b>	<b>3</b>	<b>1.8</b>	<b>2.0</b>	<b>6</b>	<b>0.7</b>	<b>1.0</b>	<b>3</b>
MSAA072-05	-	1.7	2.0	3						
MSAA182-3R	1.6*	1.7	2.0	3	1.5	2.0	3			
MSAA578-7	-	1.7	2.5	3						
MSBB230-02	-	1.7	2.0	3						
MSBB343-2Y	-	1.7	2.0	3						
MSBB621-03	-	1.7	2.0	3						
MST252-1Y	1.6*	1.7	2.0	3	1.5	1.5	3			

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**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
MSZ120-4	1.7*	1.7	2.0	3	1.7	2.0	3			
MSZ513-2	1.5	1.7	2.0	3	1.3	2.0	3	1.5	1.5	3
Reveille Russet (ATX91137-1Rus)	1.8	1.7	2.5	3	2.0	2.5	3	1.7	2.5	3
Superior	-	1.7	2.0	3						
MSZ107-02PP	-	1.8	2.0	2						
Lady Liberty (NY152)	2*	1.8	2.0	3	2.2	2.5	3			
MSAA076-6	1.6*	1.8	2.5	3	1.3	1.5	3			
MSAA085-1Y	1.8*	1.8	2.0	3	1.8	2.0	3			
MSAA127-7PP	2*	1.8	2.0	3	2.2	2.5	3			
MSAA342-02	-	1.8	2.5	3						
MSAA498-07	-	1.8	2.5	3						
MSBB270-1SpIY	-	1.8	2.5	3						
MSBB371-1SPL	-	1.8	2.0	3						
MSBB375-1	-	1.8	2.0	3						
MSZ020-10	-	1.8	2.0	3						
MSZ413-6P	1.6*	1.8	2.0	3	1.3	2.0	3			
MSZ436-2SPL	1.8*	1.8	2.0	3	1.8	2.0	3			
MSZ551-01	-	1.8	2.0	3						
NY149	1.8	1.8	2.5	3	1.8	2.0	3	1.8	2.0	3
Obama	-	1.8	2.5	3						
Queen Anne	1.5	1.8	2.0	3	1.7	2.0	3	1.0	1.5	3
Huron Chipper (MSW485-2)	1.8	2.0	2.5	3	1.7	2.0	3	1.8	2.5	3
MSBB190-01	-	2.0	2.0	3						
MSBB190-03	-	2.0	2.5	3						
MSCC553-1R	-	2.0	2.5	3						
MSX193-1Y	-	2.0	2.5	2						
MSX245-2Y	1.8	2.0	2.0	3	2.0	2.0	3	1.5	1.5	3
MSX443-3P	2.3*	2.0	2.5	3	2.5	4.0	3			
MSY733-1	-	2.0	2.5	3						

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**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
MSZ200-3	-	2.0	2.5	2						
White Beauty	-	2.0	2.5	3						
Harmony	-	2.2	2.5	3						
MSAA056-03Y	-	2.2	2.5	3						
MSAA392-05Y	-	2.2	2.5	3						
MSBB075-1Y	-	2.2	2.5	3						
MSBB107-1	-	2.2	2.5	3						
MSBB719-1	-	2.2	2.5	3						
MSX497-6 <sup>LBR</sup>	2.6	2.2	3.0	3	3.0	3.5	3	2.5	3.0	3
MSZ578-1Y	-	2.2	2.5	3						
NDAF113484B-1	-	2.2	2.5	3						
NY162	-	2.2	2.5	3						
Red Sunset	-	2.2	2.5	3						
<b>Russet Norkotah</b>	<b>2.3</b>	<b>2.2</b>	<b>3.0</b>	<b>3</b>	<b>2.8</b>	<b>4.0</b>	<b>3</b>	<b>1.9</b>	<b>2.5</b>	<b>6</b>
MSZ107-6PP	2.3	2.3	2.5	2	2.0	2.5	3	2.7	3.0	3
BNC182-5	2.5*	2.3	2.5	3	2.7	3.0	3			
Isle Royale (MSX569-1R)	1.7	2.3	3.5	3	1.3	2.0	3	1.5	2.5	6
MSAA196-6	2.2*	2.3	2.5	3	2.0	2.5	3			
MSBB232-3	-	2.3	2.5	3						
MSL211-3	2.2*	2.3	2.5	3	2.0	2.0	3			
Mystery Splash	1.6*	2.3	3.0	3	0.8	1.5	3			
<b>Atlantic</b>	<b>2.7</b>	<b>2.5</b>	<b>2.5</b>	<b>3</b>	<b>3.0</b>	<b>3.5</b>	<b>3</b>	<b>2.5</b>	<b>3.0</b>	<b>4</b>
Fioretta	-	2.5	3.0	3						
MSAA127-1PP	2.4*	2.5	3.0	3	2.3	3.0	3			
MSAA183-2PY	2.1*	2.5	3.0	3	1.7	2.0	3			
MSAA240-05	-	2.5	3.0	3						
MSBB262-1YSpl	-	2.5	3.0	3						
MSZ552-2P	-	2.5	2.5	2						
<b>Onaway</b>	<b>2.3</b>	<b>2.5</b>	<b>2.5</b>	<b>2</b>	<b>2.5</b>	<b>3.0</b>	<b>3</b>	<b>2.0</b>	<b>2.0</b>	<b>3</b>

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**2017-2019 SCAB DISEASE TRIAL SUMMARY**  
**SCAB NURSERY, MONTCALM RESEARCH CENTER , MI**

LINE	3-YR* AVG.	2019 RATING	2019 WORST	2019 N	2018 RATING	2018 WORST	2018 N	2017 RATING	2017 WORST	2017 N
<b>Reba</b>	<b>2.4</b>	<b>2.5</b>	<b>2.5</b>	<b>2</b>	<b>2.5</b>	<b>2.5</b>	<b>3</b>	<b>2.2</b>	<b>3.0</b>	<b>6</b>
AO02183-2	-	2.7	3.0	3						
MSAA218-03	-	2.7	3.0	3						
MSBB281-1PY	-	2.7	3.0	3						
MSX156-1Y	2.4*	2.7	3.0	3	2.1	2.5	5			
Nadine	-	2.7	3.0	3						
A07061-6RUS	2.6	2.8	3.0	2	2.5	3.0	3	2.7	3.0	3
<b>Snowden</b>	<b>2.8</b>	<b>2.8</b>	<b>3.5</b>	<b>6</b>	<b>3.0</b>	<b>3.5</b>	<b>3</b>	<b>2.5</b>	<b>3.0</b>	<b>6</b>
MSBB032-1	-	2.8	3.5	3						
Manistee	2.5	3.0	3.5	3	2.2	2.5	3	2.3	2.5	3
MSZ705-03	-	3.0	3.5	3						
<b>Yukon Gold</b>	<b>2.6</b>	<b>3.0</b>	<b>3.5</b>	<b>6</b>	<b>2.6</b>	<b>3.5</b>	<b>6</b>	<b>2.2</b>	<b>2.5</b>	<b>6</b>
A071012-4BFRUS	3*	3.2	3.5	3	2.8	3.0	3			
MSCC282-01WR	-	3.2	4.0	3						
MSY719-01	-	3.2	3.5	3						
B2869-29	3.3*	3.3	3.5	3	3.3	4.0	3			
MSAA157-2PY	2.8*	3.3	3.5	3	2.3	2.5	3			
<b>HSD<sub>0.05</sub> =</b>		<b>1.7</b>			<b>2.8</b>			<b>2.2</b>		

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

N= Number of replications.

\*2-Year Average.

Table 8

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

2019 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY  
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2019 RATING	2019 N	LINE	2019 RATING	2019 N
<i>Sorted by ascending 2019 Rating:</i>			<i>HSD<sub>0.05</sub> = 1.7</i>		
MSDD039-01	0.0	1	MSEE158-01	1.0	1
MSBB613-04	0.5	1	MSEE182-03	1.0	1
MSCC374-1Y	0.5	1	MSEE207-02	1.0	1
MSDD138-02	0.5	1	MSBB078-1	1.5	1
MSDD457-01	0.5	1	MSBB213-1Spl	1.5	1
MSEE063-06	0.5	1	MSBB351-1	1.5	1
MSEE107-01	0.5	1	MSBB614-10	1.5	1
MSEE141-01	0.5	1	MSBB623-12	1.5	1
MSEE159-01	0.5	1	MSCC168-1	1.5	1
MSEE164-01	0.5	1	MSCC266-1	1.5	1
MSBB024-1	1.0	1	MSDD040-01	1.5	1
MSBB038-03	1.0	1	MSDD146-01	1.5	1
MSCC009-01	1.0	1	MSDD372-07	1.5	1
MSCC376-1	1.0	1	MSDD372-15	1.5	1
MSDD034-01	1.0	1	MSDD505-01	1.5	1
MSDD074-02RR	1.0	1	MSDD516-01	1.5	1
MSDD114-03	1.0	1	MSDD565-01	1.5	1
MSDD244-15	1.0	1	MSEE010-03	1.5	1
MSDD247-07	1.0	1	MSEE022-12	1.5	1
MSDD247-11	1.0	1	MSEE031-03	1.5	1
MSDD254-01	1.0	1	MSEE033-02	1.5	1
MSDD267-03	1.0	1	MSEE063-10	1.5	1
MSDD271-10	1.0	1	MSEE101-02	1.5	1
MSDD403-01	1.0	1	MSEE105-01	1.5	1
MSDD491-01	1.0	1	MSEE127-01	1.5	1
MSDD543-01	1.0	1	MSEE127-02	1.5	1
MSEE017-04	1.0	1	MSEE130-02	1.5	1
MSEE025-01	1.0	1	MSEE137-02	1.5	1
MSEE085-01	1.0	1	MSEE151-04	1.5	1
MSEE090-01	1.0	1	MSEE155-01	1.5	1
MSEE094-01	1.0	1	MSEE157-01	1.5	1
MSEE101-01	1.0	1	MSEE163-01	1.5	1
MSEE113-01	1.0	1	MSEE169-01	1.5	1
MSEE113-02	1.0	1	MSEE171-02	1.5	1
MSEE116-01	1.0	1	MSEE175-01	1.5	1
MSEE130-01	1.0	1	MSEE180-2P	1.5	1
MSEE137-01	1.0	1	MSEE185-04	1.5	1
MSEE137-03	1.0	1	MSEE247-06WP	1.5	1
MSEE138-02	1.0	1	MSEE312-01	1.5	1
MSEE141-03	1.0	1	MSEE313-01	1.5	1
MSEE149-01	1.0	1	MSBB222-01	2.0	1
MSEE151-02	1.0	1	MSBB238-01RY	2.0	1
MSEE152-01	1.0	1	MSBB618-09	2.0	1



Table 8

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS

2019 SCAB DISEASE EARLY GENERATION TRIAL SUMMARY  
SCAB NURSERY, MONTCALM RESEARCH CENTER, MI

LINE	2019 RATING	2019 N	LINE	2019 RATING	2019 N
<i>Sorted by ascending 2019 Rating:</i>			<i>HSD<sub>0.05</sub> = 1.7</i>		
MSCC302-1	2.0	1	MSEE247-2WR	2.0	1
MSCC314-1	2.0	1	MSEE308-01	2.0	1
MSCC515-2Y	2.0	1	MSEE314-01	2.0	1
MSCC570-1	2.0	1	MSCC081-01	2.5	1
MSDD088-01	2.0	1	MSCC300-1	2.5	1
MSDD089-01	2.0	1	MSCC614-1RYSPL	2.5	1
MSDD107-01Y	2.0	1	MSDD005-01	2.5	1
MSDD114-06	2.0	1	MSDD039-02	2.5	1
MSDD219-02	2.0	1	MSDD251-01Y	2.5	1
MSDD483-1	2.0	1	MSDD370-02	2.5	1
MSDD553-01	2.0	1	MSDD495-01	2.5	1
MSDD847-1	2.0	1	MSEE018-02	2.5	1
MSEE031-01	2.0	1	MSEE022-08	2.5	1
MSEE038-01	2.0	1	MSEE076-01	2.5	1
MSEE052-05	2.0	1	MSEE092-02	2.5	1
MSEE079-01	2.0	1	MSEE102-01	2.5	1
MSEE088-01	2.0	1	MSEE142-01	2.5	1
MSEE092-01	2.0	1	MSEE149-02	2.5	1
MSEE096-01	2.0	1	MSEE153-02	2.5	1
MSEE099-01	2.0	1	MSEE154-01	2.5	1
MSEE103-02	2.0	1	MSEE162-01	2.5	1
MSEE115-01	2.0	1	MSEE171-01	2.5	1
MSEE123-01	2.0	1	MSEE174-01	2.5	1
MSEE131-01	2.0	1	MSEE190-01	2.5	1
MSEE134-01	2.0	1	MSEE206-04	2.5	1
MSEE135-01	2.0	1	MSEE222-01R	2.5	1
MSEE138-01	2.0	1	MSEE246-01WP	2.5	1
MSEE142-02	2.0	1	MSEE319-03	2.5	1
MSEE151-01	2.0	1	MSCC282-02PP	3.0	1
MSEE151-03	2.0	1	MSDD045-01	3.0	1
MSEE158-02	2.0	1	MSDD350-01	3.0	1
MSEE158-03	2.0	1	MSEE120-01	3.0	1
MSEE163-02	2.0	1	MSEE173-01	3.0	1
MSEE163-03	2.0	1	MSEE202-04	3.0	1
MSEE168-01Y	2.0	1	MSEE213-01	3.0	1
MSEE180-3P	2.0	1	MSEE216-01	3.0	1
MSEE183-02	2.0	1	MSEE217-01Y	3.0	1
MSEE185-03	2.0	1	MSEE240-01Y	3.0	1
MSEE185-05	2.0	1	MSCC720-1WR	3.5	1
MSEE187-01	2.0	1	MSDD244-05	3.5	1
MSEE216-02	2.0	1	MSDD251-02Y	3.5	1
MSEE224-01	2.0	1	MSDD311-01	3.5	1
MSEE241-01P	2.0	1	MSEE307-1Y	3.5	1

Table 9

MICHIGAN STATE UNIVERSITY  
POTATO BREEDING and GENETICS2019 BLACKSPOT BRUISE SUSCEPTIBILITY TEST  
SIMULATED BRUISE SAMPLES\*

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
		0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
<b>RUSSET TRIAL</b>									
<b>Russet Norkotah / Texas 112</b>	<b>1.070</b>	<b>11</b>	<b>8</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>0.8</b>
ATX91137-1Rus (Reveille Russet)	1.075	8	12	4	1	0	0	32	0.9
<b>Goldrush Russet</b>	<b>1.068</b>	<b>7</b>	<b>13</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>0.9</b>
POR06V12-3 (Castle Russet)	1.088	11	9	4	1	1	0	42	0.9
AOR07781-5	1.083	5	11	8	1	0	0	20	1.2
<b>Silverton Russet</b>	<b>1.076</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>1.3</b>
TX08352-5Rus (Vanguard)	1.066	3	8	10	4	0	0	12	1.6
A07061-6RUS	1.075	0	11	12	2	0	0	0	1.6
AO02183-2	1.090	4	8	3	5	2	2	17	2.0
A071012-4BFRUS	1.097	0	7	8	9	2	0	0	2.2
Payette Russet	1.091	2	3	8	6	1	2	9	2.3
<b>ADAPTATION TRIAL, CHIP-PROCESSING LINES</b>									
Manistee	1.078	14	9	2	0	0	0	56	0.5
MSZ219-01	1.085	6	13	3	2	1	0	24	1.2
Niagara (NY152)	1.082	8	9	6	0	2	0	32	1.2
MSZ120-4	1.088	8	7	7	3	0	0	32	1.2
MSZ022-07	1.081	10	4	8	2	0	1	40	1.2
MSZ200-3	1.076	7	9	5	3	0	1	28	1.3
FL2137	1.090	7	6	5	5	0	1	29	1.5
Huron Chipper (MSW485-2)	1.087	2	10	9	4	0	0	8	1.6
MSAA578-7	1.085	7	6	6	3	2	1	28	1.6
MSV030-4	1.090	7	5	7	4	0	2	28	1.6
MSW044-1	1.089	3	9	8	3	2	0	12	1.7
<b>Lamoka</b>	<b>1.084</b>	<b>3</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>1.7</b>
MSZ242-09	1.100	0	11	7	0	1	1	0	1.7
MSZ219-14	1.080	6	4	9	4	3	0	23	1.8
B2869-29 (2 reps)	1.085	1	0	3	1	0	0	20	1.8
MSX225-2	1.082	3	5	9	7	0	1	12	2.0
<b>Atlantic</b>	<b>1.089</b>	<b>2</b>	<b>7</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>2.0</b>
MSV498-1	1.082	1	6	11	6	1	0	4	2.0
MSZ200-6	1.081	1	6	3	5	3	0	6	2.2
MSZ052-14	1.083	3	4	8	6	4	1	12	2.3
MSZ222-19	1.093	1	5	7	7	2	2	4	2.4
MSZ101-7	1.087	4	3	7	4	2	5	16	2.5
<b>Snowden</b>	<b>1.081</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>8</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>2.6</b>
MSZ052-13	1.087	2	3	3	9	3	5	8	2.9
Mackinaw (MSX540-4)	1.096	1	1	6	6	6	5	4	3.2
MSZ242-13	1.105	0	1	3	3	4	2	0	3.2
MSZ219-13	1.087	0	1	2	4	8	10	0	4.0
MSAA076-6	1.095	0	2	0	5	7	11	0	4.0
MSZ020-10	1.094	0	1	1	1	2	20	0	4.6
<b>ADAPTATION TRIAL, TABLESTOCK LINES</b>									
Isle Royale (MSX569-1R)	1.048	20	5	0	0	0	0	80	0.2
MSV093-1Y	1.074	19	5	0	0	0	0	79	0.2
MSV443-1PP	1.063	16	9	0	0	0	0	64	0.4
Blackberry (MSZ109-10PP)	1.066	14	10	0	0	0	0	58	0.4

**SIMULATED BRUISE SAMPLES\***

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
		0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
MSAA182-3R	1.078	16	7	2	0	0	0	64	0.4
<b>Yukon Gold</b>	<b>1.076</b>	<b>15</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>0.5</b>
MSZ598-2	1.068	11	13	0	1	0	0	44	0.6
<b>Dark Red Norland</b>	<b>1.060</b>	<b>17</b>	<b>9</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>55</b>	<b>0.7</b>
MSX324-01P	1.082	10	9	3	0	0	0	45	0.7
MSX398-2	1.084	3	3	1	0	0	0	43	0.7
MSV179-1	1.071	10	12	3	0	0	0	40	0.7
MSX324-02R	1.069	12	9	3	1	0	0	48	0.7
Queen Anne	1.060	10	12	2	1	0	0	40	0.8
<b>Superior</b>	<b>1.069</b>	<b>13</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>0.8</b>
<b>Pike (Chip)</b>	<b>1.085</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>0.8</b>
MSAA157-2PY	1.071	7	7	4	0	0	0	39	0.8
MSZ416-08RY	1.065	9	11	5	0	0	0	36	0.8
MST252-1Y	1.067	8	9	5	4	0	0	31	1.2
MSAA174-1	1.062	10	4	9	1	2	0	38	1.3
MSX497-6	1.067	8	6	6	4	1	0	32	1.4
MSAA196-06	1.068	7	7	7	3	0	1	28	1.4
MSX194-3 (Chip)	1.077	0	3	4	0	0	0	0	1.6
MSZ551-01	1.080	4	7	8	2	3	0	17	1.7
MSX156-1Y	1.070	1	7	11	6	0	0	4	1.9
MSX245-2Y (Chip)	1.084	3	1	8	8	4	1	12	2.5

**PRELIMINARY TRIAL, CHIP-PROCESSING LINES**

MSBB107-1	1.076	18	6	1	0	0	0	72	0.3
MSBB165-1	1.075	13	8	3	1	0	0	52	0.7
MSBB038-01	1.071	10	11	3	1	0	0	40	0.8
MSBB032-1	1.082	8	11	3	2	0	0	33	1.0
MSBB613-07	1.079	8	12	3	2	0	0	32	1.0
MSAA061-7	1.084	8	8	6	2	0	0	33	1.1
MSAA056-03Y	1.070	8	8	4	4	1	0	32	1.3
MSBB058-04	1.085	3	5	4	2	1	0	20	1.5
MSBB079-2	1.081	5	7	7	5	1	0	20	1.6
MSAA228-1Y	1.080	4	7	6	6	1	1	16	1.8
MSAA342-02	1.072	5	5	6	6	2	1	20	1.9
MSBB018-1	1.078	4	9	5	2	3	4	15	2.1
MSAA218-03	1.079	2	5	8	8	1	1	8	2.2
MSBB230-02	1.077	3	6	3	7	3	2	13	2.3
MSAA036-01	1.080	2	6	6	5	5	1	8	2.3
MSAA498-07	1.081	2	4	9	5	4	1	8	2.3
MSBB210-A	1.076	1	7	5	8	3	1	4	2.3
MSAA072-05	1.084	1	6	5	9	2	2	4	2.4
MSBB610-24Y	1.087	2	4	5	3	4	2	10	2.5
MSBB075-1Y	1.079	1	3	6	10	5	0	4	2.6
MSBB634-8	1.079	4	3	3	4	2	9	16	3.0
MSBB621-03	1.076	1	1	4	6	5	9	4	3.5
MSBB190-03	1.087	0	2	4	5	3	10	0	3.6
MSAA240-05	1.086	1	3	0	4	4	13	4	3.8

**PRELIMINARY TRIAL, TABLESTOCK LINES**

Harmony	1.062	22	3	0	0	0	0	88	0.1
MSBB364-1	1.059	21	4	0	0	0	0	84	0.2
NY149	1.075	16	8	1	0	0	0	64	0.4
MSZ590-1	1.060	9	1	2	0	0	0	75	0.4
MSX526-1	1.080	14	11	0	0	0	0	56	0.4

**SIMULATED BRUISE SAMPLES\***

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
		0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
<b>Yukon Gold</b>	<b>1.072</b>	<b>16</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>62</b>	<b>0.5</b>
Nadine	1.060	15	6	4	0	0	0	60	0.6
White Beauty	1.077	15	7	2	1	0	0	60	0.6
W8893-1R	1.059	12	11	2	0	0	0	48	0.6
MSAA085-1	1.080	11	12	2	0	0	0	44	0.6
MSBB375-1	1.084	13	9	2	1	0	0	52	0.6
MSZ513-2	1.067	14	7	1	1	1	0	58	0.7
Obama	1.064	8	10	4	1	0	0	35	0.9
MSZ101-6	1.082	10	10	3	1	1	0	40	0.9
MSBB719-1	1.068	7	11	6	0	0	0	29	1.0
MSZ615-2	1.069	9	10	3	3	0	0	36	1.0
<b>Onaway</b>	<b>1.062</b>	<b>7</b>	<b>13</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>28</b>	<b>1.0</b>
MSY022-02	1.079	8	9	7	1	0	0	32	1.0
Reba	1.076	6	9	4	5	0	0	25	1.3
Fioretta	1.067	7	5	8	4	0	1	28	1.5
MSZ407-7	1.081	7	4	9	2	1	1	29	1.5
MSDD085-13	1.085	4	8	7	3	2	0	17	1.6
MSZ169-1	1.080	2	7	10	2	2	2	8	2.0
NY162	1.083	2	8	5	7	1	2	8	2.1
MSZ242-07	1.101	0	4	7	8	1	2	0	2.5

**PRELIMINARY TRIAL, PIGMENTED LINES**

MSAA127-7PP	1.054	25	0	0	0	0	0	100	0.0
MSBB262-1YSpl	1.067	21	3	0	0	0	0	88	0.1
<b>Dark Red Norland</b>	<b>1.058</b>	<b>21</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>84</b>	<b>0.2</b>
MSBB308-2PP	1.061	19	6	0	0	0	0	76	0.2
MSAA101-1RR	1.078	18	7	0	0	0	0	72	0.3
MSZ413-07PP	1.063	19	5	1	0	0	0	76	0.3
MSZ443-01PP	1.065	14	4	1	0	0	0	74	0.3
NDAF113484B-1	1.058	16	4	2	0	0	0	73	0.4
MSBB305-2SPL	1.062	8	4	1	0	0	0	62	0.5
MSZ107-06PP	1.076	11	7	1	0	0	0	58	0.5
MSZ109-07PP	1.060	9	9	0	0	0	0	50	0.5
MSZ427-03R	1.049	6	6	0	0	0	0	50	0.5
MSZ427-01R	1.062	15	7	3	0	0	0	60	0.5
MSBB238-01RY	1.059	13	8	2	0	0	0	57	0.5
MSCC553-1R	1.076	14	8	3	0	0	0	56	0.6
Red Sunset	1.060	12	12	1	0	0	0	48	0.6
MSAA161-04RY	1.079	13	9	3	0	0	0	52	0.6
MSBB371-1SPL	1.071	11	13	1	0	0	0	44	0.6
MSBB270-1Spl	1.070	10	14	1	0	0	0	40	0.6
MSCC282-01WR	1.073	10	12	2	0	0	0	42	0.7
MSZ413-6P	1.070	10	13	2	0	0	0	40	0.7
MSX443-3P (mini)	1.081	4	9	0	0	0	0	31	0.7
MSZ107-02PP	1.075	5	4	4	0	0	0	38	0.9
MSBB213-1Spl	1.077	9	7	6	2	0	0	38	1.0
MSAA127-1PP	1.054	2	7	3	0	0	0	17	1.1
MSAA706-7PP	1.063	5	6	7	0	0	0	28	1.1
MSAA161-01RY	1.068	1	7	3	2	0	0	8	1.5

**USPB/SFA TRIAL CHECK SAMPLES (Not bruised)**

ND7519-1	1.086	19	6	0	0	0	0	76	0.2
AOR09034-3	1.086	19	4	1	0	0	0	79	0.3

**SIMULATED BRUISE SAMPLES\***

ENTRY	SP GR	NUMBER OF SPOTS PER TUBER						PERCENT (%)	
		0	1	2	3	4	5+	BRUISE FREE	AVERAGE SPOTS/TUBER
Mackinaw	1.090	15	6	3	1	0	0	60	0.6
MSW075-2	1.082	14	8	2	1	0	0	56	0.6
MSV030-4	1.092	14	8	2	0	1	0	56	0.6
<b>Lamoka</b>	<b>1.088</b>	<b>11</b>	<b>10</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>0.7</b>
MSZ219-14	1.084	14	5	5	1	0	0	56	0.7
<b>Snowden</b>	<b>1.086</b>	<b>10</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>0.8</b>

**USPB/SFA TRIAL BRUISE SAMPLES**

ND7519-1	1.086	12	7	4	1	1	0	48	0.9
AOR09034-3	1.086	6	12	5	2	0	0	24	1.1
MSW075-2	1.082	4	10	7	3	1	0	16	1.5
MSV030-4	1.092	7	3	5	6	3	1	28	1.9
MSZ219-14	1.084	5	4	7	4	5	0	20	2.0
<b>Lamoka</b>	<b>1.088</b>	<b>5</b>	<b>4</b>	<b>7</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>20</b>	<b>2.0</b>
<b>Snowden</b>	<b>1.086</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>13</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>2.9</b>
Mackinaw	1.090	1	2	4	11	6	1	4	2.9

\* Thirteen to twenty-five (dependent on the number of replications used) 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 12/3/2019. The table is presented in ascending order of average number of spots per tuber.