

Potatoes

2019 UPPER PENINSULA VARIETY TRIAL

Michigan State University Extension conducts multi-location field trials every year to evaluate new potato varieties. These trials are funded by the Michigan Potato Industry Commission and facilitated by the MSU Potato Outreach Program, MSU Extension and AgBioResearch. For 2019, the Upper Peninsula trial was located at Verbrigghe TJJ Farms in Cornell, Michigan. Forty-seven different russet, tablestock and chip varieties were planted and compared to industry standards. In addition to the variety trial, two U.P. potato growers planted larger observation blocks of up-and-coming varieties in 2019, including Red Prairie and Vanguard russet.

The U.P. potato variety trial was planted June 6, vine killed Sept. 7 and harvested Oct. 9. Planting and harvest were delayed somewhat due to poor field conditions. Weather data received from Michigan State University's Escanaba Enviroweather station recorded a growing season (planting to harvest) rainfall total of 15.57 inches, approximately 3 inches above the five-year average rainfall of 12.71 inches. Growing degree-day (GDD) accumulation at base 40 was 2,814 (planting to vine kill). For the trial, every variety was rated for vine vigor and maturity, evaluated for yield and quality, and graded according to tuber type (Table 1 on reverse).

On August 28, 2019 sixty-five potato growers, agribusiness representatives and others attended a field day at the U.P. trial location to view the plots and receive updates on topics important to the Michigan potato industry (Figure 1). 100% of those responding to an evaluation survey following the event indicated gaining new knowledge about potato production as a result of their participation. 60% of respondents reported intent to change some aspect of potato management on their farm as a result of the program, which they projected would impact approximately 2,690 acres with an average economic value of \$50 per acre.



Figure 1. Participants at the 2019 U.P. Potato Field Day

RESEARCH AT A GLANCE

PURPOSE:

Evaluate new potato varieties for yield and quality under U.P. commercial production conditions.

TRIAL LOCATION:

Verbrigghe Farms in Cornell, Michigan, with assistance from Tony Vandamm

SOIL TYPE:

Onaway-Ossineke fine sandy loam

EXPERIMENTAL DESIGN:

Un-replicated single row strip plots

TRIAL PROTOCOL:

- Previous crop was alfalfa - rye cover crop
- 47 russet, tablestock and chipping potato varieties
- Planted June 6, 2019
- Plot size 34 in. wide by 100 ft. long with 12.5 in. in-row spacing
- Grower's standard fertility and pest control program
- Irrigated as needed
- Harvested 23 ft. of row on Oct. 9, 2019

RESULTS:

- The highest yielding varieties were Fioretta (yellow), Dark Red Norland (red), AAC Kameron (white), Reveille (Russet), and Niagara NY152 (Chip)

Table 1. 2019 Upper Peninsula Potato Variety Trial

	LINE	CWTA		PERCENT OF TOTAL ¹						RAW TUBER QUALITY ³ (%)					YELLOW FLESH		RED SKIN				COMMENTS	
		US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR ²	HH	VD	IBS	BC	COMMON SCAB RATING ⁴	WAXINE SS ⁵	FLESH COLOR ⁶	WAXINE SS ⁵	SKIN COLOR ⁷	UNIFORMITY ⁸	SILVER SCURF ⁹		
YELLOW SKIN TYPE	Fioretta	541	619	87	3	77	10	10	1.070	0	0	0	0	1.0	3.0	4.0						Nice type, high yielding
	Arizona	566	586	97	3	58	39	0	1.064	0	0	0	0	2.0	2.0	1.0						
	Obama	349	418	94	6	80	14	0	1.070	0	0	0	0	0.0	4.0	4.0						Oblong type, nice flesh color
	Electra	556	592	87	2	64	23	11	1.069	0	0	0	0	1.0	3.0	2.0						
	Actrice	720	823	97	3	85	12	0	1.064	0	0	1	0	0.0	4.0	2.0						
	MSV033-1Y	496	512	96	2	46	50	2	1.079	0	0	10	0	1.0	2.0	1.0						
	Queen Anne	299	333	83	13	83	0	4	1.061	0	0	0	0	0.0	5.0	3.0						Smooth skin
	NY149	395	408	90	3	62	28	7	1.084	0	0	0	0	1.0	4.0	2.0						
Yukon Gold	252	296	85	4	43	42	11	1.074	0	0	0	0	1.0	2.0	3.0							
	MEAN	464	510	91	4	66	24	5	1.071	0	0	1	0	0.8	3.2	2.4						
RED SKIN TYPE	Dark Red Norland	556	627	89	1	71	18	10	1.066	0	0	4	0	1.0			3.0	4.0	4.0	0.0		
	Red Prairie	507	542	93	1	74	19	6	1.065	0	0	2	0	0.0	4.0	4.0	4.0	3.0	0.0	0.0		Good skin set
	NDAF113484B-1	478	505	94	3	57	37	3	1.061	0	0	40	0	0.0	5.0	3.0	5.0	5.0	0.0	0.0		Skinning
	W8893-1R	460	495	93	4	81	12	3	1.067	0	0	0	0	0.0	5.0	3.0	4.0	5.0	1.0	1.0		Skinning
	Autumn Rose	357	511	70	1	66	4	29	1.077	0	0	0	0	3.0	1.0	2.0	3.0	2.0	2.0	2.0		Non uniform type-very knobby
	NY164	343	372	92	8	92	0	0	1.067	0	10	0	0	0.0	5.0	2.0	5.0	5.0	0.0	0.0		Skinning
	Roko	334	397	84	4	84	0	12	1.072	0	0	0	0	0.0	3.0	4.0	4.0	4.0	1.0	1.0		Nice dark color
	Red Sunset	286	306	91	7	76	15	2	1.065	0	1	1	0	0.0	4.0	1.0	5.0	5.0	0.0	0.0		Skinning
	MEAN	415	470	88	4	75	13	8	1.068	0	1	6	0	0.5	3.8	2.9	4.1	4.1	0.5			
ROUND WHITE TYPE	AAC Kamer	525	539	97	3	78	20	0	1.081	0	0	2	0	0.0								
	msv179-1	521	534	98	2	37	60	1	1.074	0	0	0	0	1.0								
	Harmony	506	572	89	4	63	19	7	1.063	0	0	0	0	0.0								
	Bridget	477	548	87	3	70	17	10	1.081	0	0	0	0	1.0								Skinning
	AF5280-5	401	429	94	1	47	47	6	1.072	0	0	0	0	0.0								Nice skin and flesh
	White Beauty	365	407	90	5	71	19	5	1.074	0	0	0	0	0.0								
	Reba	360	390	92	2	53	39	6	1.079	0	0	0	0	0.0								Very uniform type
	NDAF102629C	347	383	91	3	66	25	7	1.078	0	0	0	0	0.0								Skinning, nice type
	MSX194-3	317	342	93	7	84	9	0	1.079	0	0	0	0	1.0								
	Libertie	316	343	92	4	73	19	4	1.069	0	0	0	0	1.0								Skinning
Nadine	248	294	84	9	75	9	7	1.060	0	0	0	0	0.0								Some netting	
	MEAN	399	435	91	4	66	26	5	1.074	0	0	0	0.4									
RUSSET TYPE	Reveille Russet	579	657	89	5	43	46	6	1.073	0	0	0	0	3.0								Non uniform type
	AQ7061-6RUS	511	659	78	21	69	9	1	1.085	0	0	1	0	1.0								Nice russet type
	Russet Norkotah	469	565	83	10	52	31	7	1.083	5	0	0	0	3.0								Nice russet type
	A08433-4sto	445	568	78	7	45	33	15	1.075	0	0	0	0	0.0								
	River Russet	421	451	93	5	33	60	2	1.078	0	0	0	0	0.0								Stem end greening
	A071012-4BFRUS	404	506	80	11	52	28	9	1.090	0	1	0	0	0.0								Nice russet type, deep eyes
	Pacific Russet	344	401	85	15	60	25	0	1.070	0	1	0	0	0.0								Uniform type
	AQ02183-2	322	447	72	18	72	0	10	1.086	0	0	0	0	0.0								Nice russet type
	Vanguard	307	382	80	11	45	35	9	1.068	0	0	0	0	0.0								Uniform type
	Silverton Russet	304	353	86	9	50	36	5	1.069	0	0	0	0	0.0								Nice russet type
	AQ07781-5	286	416	70	13	34	36	17	1.085	0	0	0	0	0.0								
Castle Russet	279	335	83	9	68	15	8	1.080	0	0	0	0	0.0								Nice russet type	
CO10091-1RUS	244	378	65	35	61	4	0	1.076	0	0	0	0	0.0									
	MEAN	378	471	80	13	53	28	7	1.078	0	0	0	0	0.5								
CHIP AND NOVELTY TYPES	NY 152	486	495	99	1	91	8	0	1.089	2	0	0	0	1.0								
	Snowden	440	449	98	2	63	35	0	1.099	0	1	0	0	0.0								High gravity
	ND7519-1	376	431	87	13	73	14	0	1.100	0	1	0	0	1.0								High gravity
	MSV030-4	285	307	93	7	88	5	0	1.099	0	0	0	0	0.0								High gravity
	Mackinaw	269	335	80	20	62	18	0	1.094	0	0	0	0	0.0								
	Michigan Purple	416	426	97	3	77	20	0	1.073	0	0	0	0	3.0								Skinning
	MEAN	379	407	92	8	76	17	0	1.092	0	0	0	0.8									

*SIZE	*SPECIFIC GRAVITY	*RAW TUBER	*COMMON SCAB RATING	*WAXINESS RATING	*FLESH	*SKIN COLOR	*UNIFORMITY OF SKIN COLOR	*SILVER SCURF
Russets	Non-russet tablestock	Chip	Data not replicated	(percent of tubers out)	0.0: Complete absence of surface or pitted lesions	1: Heavy netting, buff	1: Highly variable, non-uniform	0: No incidence of silver scurf
Bs: < 4 oz	Bs: < 17/8"	Bs: < 17/8"		HH: Hollow Heart	1.0: Presence of surface lesions	1: White	5: Highly uniform, color throughout	
As: 4 - 10 oz	As: 17/8" - 3 1/4"	As: 17/8" - 3 1/4"		VD: Vascular Discoloration	2.0: Pitted lesions on tubers, though coverage is low	5: Dark yellow		
OV: > 10 oz	OV: > 3 1/4"	OV: > 3 1/4"		IBS: Internal Brown Spot	3.0: Pitted lesions common on tubers	5: Dark red		
PO: Pickouts	PO: Pickouts	PO: Pickouts		BC: Brown Center	4.0: Pitted lesions severe on tubers			
					5.0: Over 50% of tuber surface area covered in pitted lesions			