MICHIGAN STATE UNIVERSITY | Extension

2022 Upper Peninsula Potato Variety Trial Results

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The Michigan Potato Industry Commission (MPIC), MSU Potato Specialist, Chris Long, and staff at the MSU Upper Peninsula Research and Extension Center continued the long-standing UP Potato Variety Trial in 2022. The trial was again hosted by Verbrigghe Farms in Rock, MI with assistance from Tony VanDamme and showcased 30 different varieties of russet, red, yellow, chipping, and novelty type tubers. Varieties were planted in single, unreplicated rows, 100ft in length on June 1st. The field was not fumigated, and tubers were planted 12 inches apart on 34-inch rows. Starter and side-dress fertilizer were applied by the grower at recommended rates according to soil analysis and best practices for the adjacent commercial field.

This year's growing season featured near normal temperatures and below normal precipitation, based on data from the Escanaba Enviroweather station. Degree day accumulation was slow until late June then steady for the rest of the season, amounting to 2,633 GDD_{40} from planting to vine kill. Only 9.33 inches of rain fell on the trial field between planting and harvest, roughly 3.5 inches below the 6-year average for normal precipitation. However, the plot was under irrigation. Vines were killed September 15th, and the plot was harvested October 13th. Common scab pressure was low across most varieties this year, with the trial average rating amounting to 0.5 out of 5. Other disease symptoms were minimal, and physiological disorders were also relatively limited. The overall mean total yield for the plot was 436 cwt/a with US #1 tubers averaging 379 cwt/a.

Of the russet varieties, A12327-5VR was the top yielder, producing a total of 642 cwt. per acre, 584 cwt. of which graded out as US #1 tubers. All russet varieties had zero common scab. C010085-1RU and Reveille Russet were other high yielding russets, both producing close to 400 cwt. per acre of US #1 tubers. Russet varieties were also free of physiological defects, like hallow heart and vascular discoloration, this year.

Of the red skin varieties, NDAF113484B-1 was the top yielding line. 430 cwt per acre of U.S. #1 tubers were harvested out of the total 460 cwt/a yield produced by NDAF113484B-1. The scab rating for this variety was 0 and internal quality was excellent. Other top yielding red skin varieties were NDA050237B-1R and the check variety, Dark Red Norland. Both produced close to 400 cwt. per acre of U.S. #1 tubers. A purple-skinned novelty variety, Blackberry, yielded 544 cwt per acre total with 479 cwt/a graded as US #1. Blackberry also showed no scab and excellent internal quality.

Of the yellow skin varieties, Constance was the top performer grossing 643 cwt. per acre, with 568 cwt. per acre making U.S. #1 grade. All other yellow varieties, except Allora and W13103-2Y produced more than 398 cwt/a of US #1 tubers. Colomba, Jelly, Paroli, and W15240-2Y all had minor scab, a rating of 1 out of 5. Golden Globe and Allora both showed some vascular discoloration, 20% and 10% respectively.

Lastly, of the chipping types, MSDD084-19 out-performed the other varieties, yielding 412 cwt. per acre of U.S. #1 tubers out of the total 463 cwt. per acre harvested. MSDD084-19 had excellent raw tuber quality and a common scab rating of 0. No other chipping varieties yielded over 400 cwt. per acre of U.S. #1 tubers, and a couple had minor internal quality defects.

Many thanks to the Michigan Potato Industry Commission, Chris Long, Verbrigghe and VanDamme Farms for their ongoing work to provide UP potato growers with variety information to help in future decision-making.

		CWT/A		PERCENT OF TOTAL[1]						RAW TUBER QUALITY[3] (%)							YELLOW FLESH		RED SKIN				
	LINE	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR[2]	HH	VD	IBS	BC	SCAB RATING[4]	VINE VIGOR[5]	VINE MATURITY[6]	WAXINESS[7]	FLESH COLOR[8]	WAXINESS[7]	SKIN COLOR[9]	UNIFORMITY[10]	SILVER SCURF[11]	COMMENTS
YELLOW SKIN TYPE	Allora	366	391	93	4	65	28	3	1.070	0	10	10	0	0.0	4.0	3.5	3.0	4.0					
	Colomba	559	604	92	5	58	34	3	1.060	0	0	0	0	1.0	5.0	2.0	4.0	2.0					
	Constance	568	643	88	3	70	18	9	1.069	0	0	0	0	0.0	4.0	3.0	3.0	3.0					
	Erika	398	510	78	21	78	0	1	1.069	0	0	0	0	0.0	2.5	2.5	4.0	3.0					
	Golden Globe	422	468	90	9	80	10	1	1.075	0	20	0	0	0.0	4.5	2.5	1.0	4.0					
	Jelly	484	514	94	4	77	17	2	1.076	0	0	0	0	1.0	3.5	4.5	2.0	3.0					
	Paroli	495	564	88	10	72	16	2	1.062	0	0	0	0	1.0	5.0	2.5	2.0	5.0					
	W13103-2Y	318	352	90	10	77	13	0	1.071	0	0	0	0	0.0	3.5	3.0	3.0	5.0					
	W15240-2Y	405	441	92	8	92	0	0	1.070	0	0	0	0	1.0	3.0	3.0	4.0	4.0					
	Yukon Gold	**411**	**444**	**93**	**7**	**76**	**17**	**0**	**1.084**	**0**	**0**	**0**	**0**	**1.0**	**3.0**	**3.0**	**4.0**	**2.0**					
	MEAN	443	493	90	8	75	15	2	1.071	0	3	1	0	0.5	3.8	3.0	3.0	3.5					
RED SKIN/ NOVELTY TYPE	Blackberry	479	544	88	10	79	9	2	1.073	0	0	0	0	0.0	3.5	4.0			4.0	5.0	1.0	0.0	white splashes
	Dark Red Norland	**402**	**420**	**95**	**5**	**94**	**1**	**0**	**1.068**	**0**	**0**	**0**	**0**	**0.0**	**4.0**	**2.0**			**4.0**	**3.0**	**1.0**	**3.0**	**some skinning**
	CO099076-6R	281	295	95	3	79	16	2	1.076	0	0	0	0	0.0	2.5	3.5			3.0	5.0	3.0	0.0	skinning
	NDA0502378-1R	376	401	93	7	81	12	0	1.062	0	0	0	0	0.0	2.5	5.0			4.0	3.0	5.0	0.0	
	NDAF12143-1	244	287	85	15	83	2	0	1.079	0	0	0	0	0.0	1.5	3.5			4.0	3.0	5.0	0.0	some skinning
	NDAF113484B-1	430	460	94	5	84	10	1	1.072	0	0	0	0	0.0	3.0	2.5			3.0	4.0	5.0	1.0	
	MEAN	368	401	92	8	83	8	1	1.072	0	0	0	0	0.0	2.8	3.4			3.7	3.8	3.3	0.7	
CHIPPER TYPE	**Snowden**	**206**	**336**	**62**	**35**	**60**	**2**	**3**	**1.094**	**0**	**0**	**0**	**0**	**3.0**	**4.5**	**3.0**							
	Mackinaw	241	315	76	23	76	0	1	1.090	0	0	0	0	1.0	4.0	4.0							
	MSAFB609-12	219	374	58	41	55	3	1	1.088	0	0	0	0	3.0	4.0	3.5							
	MSAFB635-15	365	523	71	29	71	0	0	1.095	0	10	10	0	2.0	4.5	4.0							
	MSDD084-19	412	463	88	12	67	21	0	1.083	0	0	0	0	0.0	4.0	3.5							
	MSZ242-13	371	401	92	6	64	28	2	1.087	0	0	1	0	1.0	4.0	4.0							
	NY163	299	404	74	25	73	1	1	1.078	0	0	0	0	0.0	3.5	3.0							
	NY168	326	340	96	1	54	42	3	1.080	0	0	10	0	0.0	3.0	4.0							
	MEAN	305	394	77	22	65	12	1	1.087	0	1	3	0	1.3	3.9	3.6							
RUSSET TYPE	**Russet Norkotah**	**233**	**303**	**77**	**23**	**57**	**20**	**0**	**1.071**	**0**	**0**	**0**	**0**	**0**	**2.0**	**3.5**							
	A08433-4STO	351	399	88	12	55	33	0	1.076	0	0	0	0	0	2.5	4.5							
	A12327-5VR	584	642	91	8	47	44	1	1.075	0	0	0	0	0	4.5	4.0							
	AF5707-1	331	375	88	11	77	11	1	1.082	0	0	0	0	0	3.0	3.5							
	C010085-1RU	402	463	87	12	65	22	1	1.084	0	0	0	0	0	3.5	3.5							
	Reveille Russet	383	391	98	2	50	48	0	1.076	0	0	0	0	0	2.5	4.0							
	MEAN	381	429	88	11	59	30	1	1.077	0	0	0	0	0.0	3.0	3.8							
	TRIAL MEAN	**379**	**436**	**86**	**12**	**71**	**16**	**1**	**1.077**	**0**	**1**	**1**	**0**	**0.5**	**3.5**	**3.4**	**3.0**	**3.5**	**3.7**	**3.8**	**3.3**	**0.7**	

[1]SIZE
Bs: < 1 7/8", < 4 oz russets
As: 1 7/8" - 3 1/4", 4 - 10 oz russets
OV: > 3 1/4", >10 oz russets
PO: Pickouts

[2]SPECIFIC GRAVITY
Data not replicated

[3]RAW TUBER QUALITY
(percent of tubers out of 10)
HH: Hollow Heart
VD: Vascular Discoloration
IBS: Internal Brown Spot
BC: Brown Center

[4]COMMON SCAB RATING
0.0: Complete absence of surface or pitted lesions
1.0: Presence of surface lesions
2.0: Pitted lesions on tubers, though coverage is low
3.0: Pitted lesions common on tubers
4.0: Pitted lesions severe on tubers
5.0: More than 50% of tuber surface area covered in pitted lesions

[5]VINE VIGOR RATING
Date: 7/15/22
Rating 1-5
1: Slow emergence
5: Early emergence

[6]VINE MATURITY RATING
Date: 8/30/22
Rating 1-5
1: Early (vines completely dead)
5: Late (vigorous vines, some flowering)

FIELD DATA

Planting Date	6/1/2022
Vine Kill Date	
Harvest Date	10/13/2022
Days (planting to vine kill)	
Days (planting to harvest)	134
GDD_{40} MAWN Station	Escanaba
GDD_{40} (planting to vine kill)	
Seed Spacing	10"

[7]WAXINESS RATING
1: Heavy netting, buff
5: Waxy, smooth

[8]FLESH COLOR
1: White
5: Dark yellow

[9]SKIN COLOR
1: Light pink
5: Dark red

[10]UNIFORMITY OF SKIN COLOR
1: Highly variable, non-uniform
5: Highly uniform, color throughout

[11]SILVER SCURF
0: No incidence of silver scurf
5: High incidence of silver scurf