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North Dakota Fresh Market Potato

Cultivar/Selection Trial Results for 2019



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Potato cultivars or selections included in this report were selected from recently released cultivars or from advancing selections with release potential (numbered lines progressing through the trial process), or cultivars that are new to the US. Standard potato cultivars used by growers served as checks.

In 2019, two trials were conducted to identify traits of red-skinned and yellow-skinned potato cultivars and advanced selections at Hoople, N.D. Seventeen red-skinned cultivars and 30 yellow-skinned cultivars were evaluated. Plots were established in a commercial, nonirrigated potato field utilizing common potato-production practices.

Prior to planting, urea at 120 pounds of nitrogen (N) per acre was broadcast and incorporated. A randomized complete block design was utilized.

Seed tubers were hand cut to approximately 2-ounce seed pieces prior to planting. Tubers were planted on May 31, 2019, in rows that were spaced 38 inches apart. Plots were 6.3 feet wide and 20 feet long.

Vines were desiccated on Sept. 8 and 13 with diquat. Red-skinned potato plots were harvested on Oct. 7. About two-thirds of the yellow-skinned potatoes were harvested on Oct. 8 and the remainder were harvested on Oct. 25. Because of the challenges with harvesting the yellow-skinned tubers, specific gravity average is shown only for plots harvested on Oct. 8 and is not analyzed statistically.

After harvest, potatoes were stored at 55 F until grading. The tuber size profile distribution was determined by sorting potatoes into C size (less than 1.875 inches), B size (1.875 to 2.25 inches), A size (2.25 to 3.5 inches), and Chef size (greater than 3.5 inches). Total yield is a summation of C + B + A + Chef.

The agronomic data presented in **Tables 1 and 2 (Pages 3 and 4)** were analyzed statistically. These analyses allow the reader to ascertain, at a predetermined level of confidence, if the differences observed among cultivars/selections are reliable, or if they might be due to error inherent in the experimental process.

The LSD (least significant difference) values beneath the columns apply only to the numbers in the column in which they appear. If the difference between two cultivars/selections exceeds the LSD value at 0.05 or 0.10, it means that with 95% or 90% confidence, respectively, the higher-yielding cultivar/selection has a significant yield advantage. When the difference between two cultivars/selections is less than the LSD value, no significant difference was found between the two under these growing conditions.

The CV stands for coefficient of variation, and is expressed as a percentage. The CV is a measure of variability in the trial. Large CVs mean a large amount of variation that could not be attributed to differences in the cultivars/selections.

The data provided does not indicate endorsement or approval by the authors, or NDSU Extension or University of Minnesota Extension.

Reproduction of the tables is permissible if presented with all the same information found in this publication (meaning no portion is deleted and the order of the data is not rearranged).

The authors acknowledge the contribution of cultivars and advanced selections for this work from the breeding programs at

North Dakota State University, the University of Minnesota, the U.S. Department of Agriculture-Agricultural Research Service, Colorado State University, the University of Wisconsin, Michigan State University, EBE Farms, Northern Konstar Potatoes, Parkland Seed, Real Potato and SunRain.

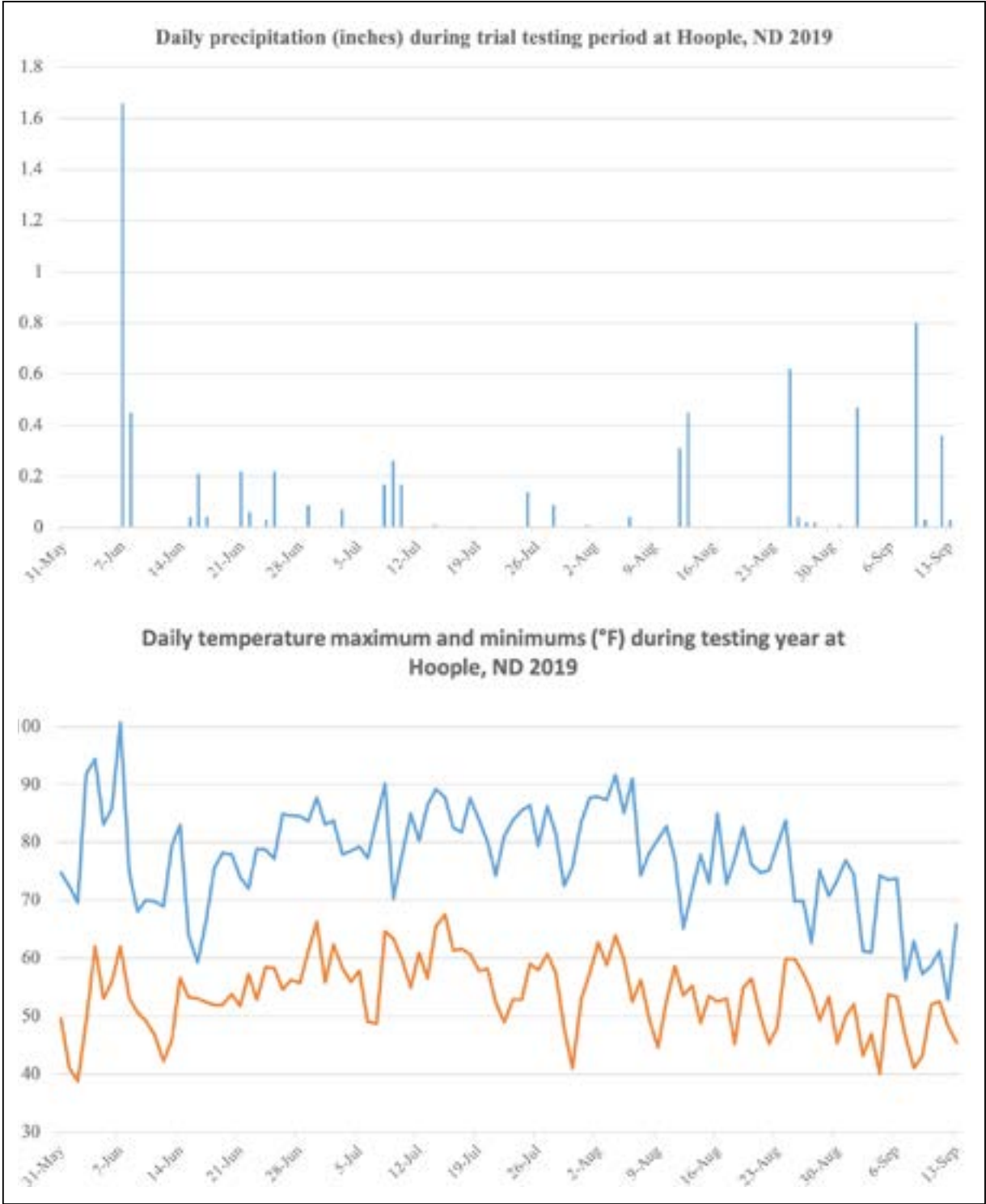


Figure 1. Weather data from May 31 to Sept. 13, 2019, from the North Dakota Agricultural Weather Network weather station in Crystal, N.D.

Table 1. Agronomic performance and graded yield of red-skinned potato cultivars/selections, Hoople, N.D., 2019.

Cultivar/Selection	Stand ¹	Stems/plant ²	Vine length ³	Vigor ⁴	C ⁵	B	A	Chef	Total yield	Specific gravity
	plants/a	number	cm	cwt/a						
Autumn Rose	11,807	4.7	61	3	11	129	56	0	196	1.083
C099076-6R	11,348	3.7	54	3	0	28	83	6	118	1.078
Cerata	11,921	3.6	88	5	2	47	77	0	126	1.076
Dark Red Norland	12,150	4	55	3	1	37	113	7	158	1.081
Dark Red Norland (Real Potato)	13,297	4.4	55	3	0	49	125	2	176	1.079
ND081571-2R	13,411	2.9	44	3	1	57	46	1	105	1.079
ND102990B-3R	11,807	3.5	40	2	6	56	33	0	94	1.079
ND113207-1R	13,182	3.1	52	3	8	86	98	0	193	1.076
ND13241C-6R	12,380	4.4	53	4	19	109	16	1	144	1.083
ND13282C-1R	11,921	4.1	42	2	4	61	17	0	82	1.083
Red Norland	12,838	3.8	55	3	1	32	158	7	198	1.074
Red Pontiac	12,265	3.9	65	4	1	45	148	3	197	1.075
Red Prairie	12,265	4.2	66	3	4	89	61	0	154	1.077
Roko	12,609	4.8	69	5	2	76	69	1	148	1.087
Sangre	12,609	3.6	53	4	1	44	45	0	89	1.068
W8890-1R	12,036	4.7	56	3	4	89	103	0	197	1.072
W8893-1R	12,495	4.2	42	2	3	70	74	0	147	1.079
Column mean	12,488	4.0	56	3	4	67	78	2	150	1.078
CV %	12	27	9	13	71	27	34	165	23	0.675
LSD 0.05	<i>ns</i> ⁶	<i>ns</i>	9	1	5	30	44	4	58	<i>ns</i>
LSD 0.10	<i>ns</i>	<i>ns</i>	7	1	4	25	36	4	48	<i>ns</i>

¹ Stand count was taken on July 11 (six weeks after planting) by counting every emerged plant.

² Stems per plant were counted on 10 plants on July 11 (six weeks after planting) and are shown as the average number of stems per plant.

³ Vine length was measured on three plants from the base of the plant to the vine tip on Sept. 3.

⁴ Vigor evaluation was completed on Sept. 3 (14 weeks after planting). A rating of 1 indicated least vigor and 5 greatest vigor.

⁵ Potatoes were sorted on a Kerian Speed sizer as C = less than 1.875, B = 1.875-2.25, A = 2.25-3.5 and Chef = greater than 3.5 inches.

⁶ *ns* indicates data were not statistically significant.

Table 2. Agronomic performance and graded yield of yellow-skinned potato cultivars/selections, Hoople, N.D., 2019.

Cultivar/Selection	Stand ¹	Stems/plant ²	Vine length ³	Vigor ⁴	C ⁵	B	A	Chef	Total yield	Specific gravity ⁶
	plants/a	number	cm	cwt/a						
A00286-3Y	11,921	3.9	77	5	5	77	50	0	132	1.063
A06336-2Y	9,514	4.2	67	4	13	81	22	0	116	1.077
A06336-5Y	10,775	4.7	61	3	8	72	17	0	98	1.071
AC10376-1W/Y	10,546	3.1	57	4	5	70	36	0	110	1.074
Actrice	12,495	4	68	3	3	37	124	4	168	1.074
Agata	12,265	5.5	70	3	4	76	111	2	193	1.072
Alegria	11,692	4.2	71	4	3	51	73	4	132	1.072
Arizona	11,807	6.1	69	4	5	68	125	9	206	1.067
Belmonda	7,565	3.4	69	4	7	71	32	0	110	1.064
CO05037-3W/Y	9,858	4	62	2	6	70	43	0	118	1.077
CO10064-1W/Y	12,495	4.5	65	5	6	78	43	0	127	1.080
Crop 49	9,743	4.4	72	3	4	45	35	0	84	1.071
Crop 56	11,348	5.4	85	5	10	100	12	0	122	1.078
Crop 58	11,463	4.3	68	4	3	62	94	2	162	1.076
Crop 80	9,514	4.8	87	4	13	75	43	0	131	1.073
Electra	11,348	4.9	83	5	5	94	50	0	149	1.062
Fioretta	11,921	5.2	71	4	3	124	68	0	196	1.065
Jelly	13,870	4.4	80	5	3	61	55	0	119	1.070
Lanorma	11,807	3.6	86	5	1	55	100	1	157	1.062
Mariola	10,431	4.5	75	3	2	41	82	4	128	1.060
Melody	11,692	3.1	89	4	4	44	33	0	81	1.060
Milva	11,348	3.7	72	4	4	72	114	4	193	1.073
Montreal	13,297	4.8	63	4	3	97	112	0	212	1.066
MST252-1Y	10,317	3	54	2	2	29	59	2	92	1.075
Musica	11,119	4.6	78	4	4	55	91	5	155	1.066
ND1241-1Y	10,317	3.7	71	5	3	43	85	6	138	1.085
NDA081451CB-1CY	11,807	5	75	5	9	64	33	5	112	1.075
Nicola	12,151	5.3	79	4	22	77	26	0	125	1.069
Noelle	11,692	4.5	62	2	15	86	29	0	130	1.072
Obama	9,629	4.7	75	4	5	65	113	3	185	1.061
Column mean	11,192	4.4	72	3.8	6.0	68	64	2	139	1.070
CV %	17	21	9	11	81	29	58	167	31	-
LSD 0.05	<i>ns</i> ⁷	1.5	11	0.7	8	32	61	5	71	-
LSD 0.10	<i>ns</i>	1.3	9	0.6	7	27	51	4	59	-

¹ Stand count was taken on July 11 (six weeks after planting) by counting every emerged plant.

² Stems per plant were counted on 10 plants on July 11 (six weeks after planting) and are shown as the average number of stems per plant.

³ Vine length was measured on three plants from the base of the plant to the vine tip on Sept. 3.

⁴ Vigor evaluation was completed on Sept. 3 (14 weeks after planting). Rating compared with Red Norland being a 5. A rating of 1 indicated least vigor and 5 greatest vigor.

⁵ Potatoes were sorted on a Kerian Speed sizer as C = less than 1.875, B = 1.875-2.25, A = 2.25-3.5 and Chef = greater than 3.5 inches.

⁶ Specific gravity was not analyzed because of the different harvest date. The mean data for each treatment is presented.

⁷ *ns* indicates data were not statistically significant.

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