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Red River Valley Potato Variety Demonstrations

Potato variety demonstrations were conducted at seven locations in 1975. In the Red River Valley plots were located at Baker and Lake Bronson. In the irrigated area of central Minnesota, plots were grown at Villard, Clear Lake, and Osseo. At Hollandale and Anoka, plots were located on the organic soil. These trials are conducted on commercial potato growers' farms in cooperation with the county agricultural extension agents. Demonstrations familiarize the grower with new varieties and to assist in evaluating the varieties to grow.

All plots consisted of 20 varieties planted in 20 hill rows and replicated twice. Seed pieces were approximately 2 ounces in size and were spaced 12 inches apart in the row.

At harvest, the potatoes from the entire plot were weighed and graded for size with a 2-inch screen. Specific gravity was determined immediately by the hydrometer method. Tables 1 and 2 report on performance of the varieties and selections at the two locations in the Red River Valley. See Horticulture Fact Sheet 4 for reports on the other five plots.

The specific gravity is a measure of the total dry matter content of the potato. It refers chiefly to the texture or mealiness that can be expected when the potatoes are cooked. Potatoes for chipping and baking should have a specific gravity over 1.080 or a dry matter over 20 percent. Dry matter as determined by specific gravity is only one measure of cooking quality, but it is used universally by both growers and processors of potatoes to indicate internal quality. Dry matter will vary with variety, soil type, season moisture, fertilization, pest control, and maturity. The following chart presents a classification of dry matter in relationship to cooking quality and processing.

Classification of dry matter in relation to cooking quality and processing

Specific gravity	Percent dry matter	Texture	Best use
Below 1.060	Less than 16%	Very soggy	Good pan friers and salads, fair boilers
1.061-1.070	16 to 18%	Soggy	Good pan friers and salads, fair boilers
1.071-1.080	18 to 20%	Waxy	Good boilers and mashers
1.081-1.090	20 to 22%	Mealy	Good bakers, mashers, chippers, French friers
Above 1.090	22 to 24%	Very mealy	Good bakers, chippers, French friers

Table 1. Potato variety demonstration planting, Baker, Minnesota 1975

Variety	Total yield per acre	U.S. No. 1 size	Specific gravity	Dry matter	Rating*
	cwt	%		%	
Bison	286	96	1.073	18.8	2.5
Irish Cobbler	260	96	1.080	19.7	3.5
Red Pontiac	232	96	1.071	17.7	2.5
Chieftain	224	96	1.075	18.6	1.5
Norland	208	92	1.068	17.1	1.0
Kennebec	202	98	1.075	18.6	3.0
Cascade	197	87	1.072	18.0	3.0
Norchip	195	98	1.075	18.6	3.5
W 284-1	194	90	1.078	19.2	1.5
Anoka	192	97	1.074	18.4	1.0
W 285-3	167	92	1.067	16.9	2.5
Haig	160	95	1.076	18.0	2.5
W 245-2	159	90	1.078	19.2	2.0
Norgold	144	90	1.072	18.0	3.0
Wischip	136	95	1.078	19.2	2.0
Nooksack	96	93	1.076	18.8	2.5
Nampa	63	82	1.078	19.2	2.0
I 6334-20	52	34	1.066	16.7	2.0
Superior	36	90	1.078	19.2	4.0
Targhee	36	40	1.064	16.2	2.0
Average	162	87	1.074	18.4	2.4

*The ratings of the varieties were made at harvest and based on the following scale: 1 = excellent; 2 = good; 3 = fair; 4 = poor; and 5 = very poor.

Cooperators: Frank Thompson and Sons, Baker, grower. Ozzie Daellenbach, Clay County, Moorhead, county extension agent.
Planted: May 29, 1975.
Harvested: September 16, 1975.
Spacing: 12 inch hills, 38 inch rows.
Fertilizer: 200 lbs. 12-24-24 broadcast. 200 lbs. 12-24-24 with planter.
Insecticides: Thimet 15G, 15 lbs. per acre with planter. Sevin applied 7/27 and 8/17.
Fungicides: Manzate applied with Sevin on 7/27 and 8/17.
Vines killed: Rotobeat September 15.
Note: Excessive rainfall caused water damage resulting in below normal yields.

Table 2. Potato variety demonstration planting, Lake Bronson, Minnesota 1975

Variety	Total yield per acre	U.S. No. 1 size	Specific gravity	Dry matter	Rating*
	cwt	%		%	
Nampa	498	96	1.079	19.4	2
Kennebec	472	97	1.074	18.4	3
Norgold	469	97	1.072	18.0	2
W 284-1	458	92	1.077	19.0	1
Red Pontiac	444	97	1.067	16.9	4
Norland	437	94	1.062	15.8	2
Cascade	434	93	1.074	18.4	3
W 285-3	434	90	1.073	18.2	2
Superior	433	96	1.078	19.2	3
Anoka	399	94	1.077	19.0	1
I 6334-20	391	95	1.074	18.4	1
W 420-1	366	94	1.075	18.6	2
W 245-2	362	93	1.085	20.7	1
Russet Burbank	360	93	1.084	20.5	3
Haig	359	94	1.074	18.4	2
Targhee	340	93	1.079	19.4	1
WC 316-1	338	96	1.075	18.6	2
Bison	321	90	1.072	18.0	2
W 285-18	310	94	1.076	18.8	2
Nooksack	285	95	1.079	19.4	2
Average	396	94	1.075	18.6	2.0

*The ratings of the varieties were made at harvest and based on the following scale: 1 = excellent; 2 = good; 3 = fair; 4 = poor; and 5 = very poor.

Cooperators: Oscar T. Carlson, Lake Bronson, grower. Duane A. Preston, Kittson County, Hallock, county extension agent.
Planted: May 20, 1975.
Harvested: September 18, 1975.
Spacing: 12 inch hills, 38 inch rows.
Fertilizer: 250 lbs. 18-46-0 with planter. 500 lbs. 0-0-60 top-dressed June 9. 200 lbs. 46-0-0 top-dressed June 9.
Insecticide: Azodrine Aug. 8 and Aug. 19.
Fungicide: Duter Aug. 8 and Aug. 19.
Irrigation: 10 applications of 1 inch every 5 days beginning July 8.
Vines killed: By frost September 13.

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