

Goldrush - A New Russet Potato Variety

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Typical tubers of Goldrush.

The potato remains an important crop for the economy of the Red River Valley of North Dakota and Minnesota. The per capita consumption of potato continues to increase slightly every year. This is good news for potato growers. The use of microwaves in homes continues to help increase the per capita consumption — especially of baking potatoes. The consumption of chips seems to have stabilized, while the consumption of french fries continues to increase, and all of these things are encouraging to the future of the potato industry. It appears that the demand for high quality baking

and boiling varieties and good quality french fry varieties will always be strong.

Goldrush, named April 1, 1992, was the 15th variety developed by NDSU and the fourth russet-skinned variety. Norland, developed in 1957, was the first NDSU variety and Norgold Russet, developed in 1964, was the first russet-skinned variety, followed by NorKing Russet in 1985 and Russet Norkotah in 1987. All three russet varieties have made a significant impact on potato production in the United States and Canada.

Goldrush, tested under the pedigree ND1538-1Russ, was selected from a

cross between ND450-3Russ and Lemhi. Both Norgold Russet and Russet Burbank are distant relatives of Goldrush.

The cross resulting in Goldrush was made in the greenhouse in 1980, and the seedling was grown in the field at the Langdon Experiment Station in 1981, at which time the original selection was made.

Goldrush has been tested in statewide trials in North Dakota for five years (1987-1991) and was in the North Central Regional Trial for three years (1989-1991).

This past season 1,800 acres of certified seed were grown in North Dakota. Certified seed was also produced in Nebraska, Wisconsin, Idaho and Montana during 1992.

When tested for five years in dryland statewide trials, the U.S. No. 1 yield of Goldrush was comparable to Norgold Russet, Russet Norkotah and NorKing Russet, but much higher than Russet Burbank (Table 1). In percent U.S. No. 1 grade, this new variety was again comparable to the above three russet varieties

but much better than Russet Burbank (Table 2).

In total solids, Goldrush was comparable to Russet Burbank, Norgold Russet and Russet Norkotah but slightly lower than NorKing Russet (Table 3). NorKing Russet is a high total solids variety adapted for processing.

When tested in the North Central Regional Trial in 1989-91, Goldrush consistently ranked in the top five entries for overall performance (Table 4). The North Central Regional Trial consists of three provinces and 12 states.

Table 1. Cwt/acre of Goldrush and four other russet varieties grown at Grand Forks (GF) and Park River (PR), North Dakota (1987-1991).

Variety	1987		1988		1989		1990		1991		Average		Avg.
	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	
	----- Cwt. -----												
Goldrush	247	165	128	176	169	168	110	149	127	156	156.2	162.8	163.7
NorKing Russet	225	192	143	155	114	177	133	116	127	210	148.5	170.0	159.2
Norgold Russet	240	273	81	178	173	194	104	145	139	154	147.4	188.8	165.1
Russet Norkotah	261	232	85	178	197	155	95	90	182	191	164.0	169.2	166.6
Russet Burbank	92	156	24	33	53	88	51	51	78	138	59.6	93	76.3
ND671-4Russ	224	222	98	129	205	138	91	104	129	156	149.4	149.8	149.6

Table 2. Percent U.S. No. 1 of Goldrush and four other varieties grown at Grand Forks (GF) and Park River (PR), North Dakota (1987-1991).

Variety	1987		1988		1989		1990		1991		Average		Avg.
	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	
	----- Percent -----												
Goldrush	63	86	80	86	77	70	78	83	81	70	75.8	79.0	77.4
NorKing Russet	83	90	73	79	71	76	83	85	85	84	79.0	82.8	80.8
Norgold Russet	82	86	67	73	84	79	72	82	85	75	78.0	79.0	78.5
Russet Norkotah	87	95	77	80	88	67	80	76	87	84	83.8	80.4	82.1
Russet Burbank	53	54	26	22	38	31	46	36	57	56	44.0	39.8	41.9
ND671-4Russ	89	88	78	81	90	75	76	80	83	80	83.2	80.8	82.0

Table 3. Percent total solids of Goldrush and four other varieties grown at Grand Forks (GF) and Park River (PR), North Dakota (1987-1991).

Variety	1987		1988		1989		1990		1991		Average		Avg.
	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	GF	PR	
	----- Percent -----												
Goldrush	19.4	19.0	18.0	22.7	18.8	19.2	20.7	21.8	21.2	19.0	19.6	20.3	19.95
NorKing Russet	19.9	20.9	20.9	22.0	18.8	19.9	21.6	20.7	21.2	19.9	20.5	20.7	20.60
Norgold Russet	19.4	20.1	16.9	20.9	18.6	18.8	19.9	20.7	20.1	19.9	19.0	20.1	19.55
Russet Norkotah	19.4	19.7	17.5	20.9	19.2	18.6	21.2	21.2	21.2	19.9	19.7	20.1	19.90
Russet Burbank	19.4	18.8	18.6	19.0	18.2	17.3	19.7	20.5	20.7	21.2	19.3	19.4	19.35
ND671-4Russ	19.2	19.9	19.0	21.2	19.2	19.0	20.1	20.9	20.1	18.6	19.5	19.9	19.7

Table 4. U.S. No. 1 yield of Goldrush and two check varieties grown in the North Central Regional Potato Variety Trial (1989-1991).

	1989			1990			1991		
	Goldrush	Norgold Russet	Russet Burbank	Goldrush	Norgold Russet	Russet Burbank	Goldrush	Norgold Russet	Russet Burbank
Alberta				325	346	123	406	264	266
Manitoba	70	75	29	132	76	131	207	170	113
Ontario	228	143	121	271	254	250	252	255	210
Indiana	ND ¹	ND	ND	ND	ND	ND	ND	ND	ND
Iowa	204	222	166	138	150	65	144	143	102
Kentucky	241	232	277	332	224	255	ND	ND	ND
Louisiana	98	85	113	ND	ND	ND	ND	ND	ND
Michigan	304	222	312	388	180	366	505	346	427
Minnesota	509	361	338	540	408	542	561	415	492
Missouri	136	98	186	7	18	38	ND	ND	ND
Nebraska	SR	329	237	250	150	146	295	204	219
New Jersey	210	147	132	190	114	101	192	147	38
North Dakota	212	199	64	171	103	50	174	164	99
Ohio	29	65	18	246	205	271	130	84	37
South Dakota	227	136	176	250	153	225	329	299	276
Wisconsin	599	418	562	517	336	450	446	363	457
Average	235.9	195.1	173.6	268	194	215	303	238	228

¹ No Data

This new russet variety is medium in maturity and has a medium-large strong vine. The plants are quite upright in growth and exhibit some drought resistance. The tubers are long to oblong and have an excellent russet skin type (see photo).

Probably the most outstanding characteristic of Goldrush is its resistance to hollow heart. Studies conducted at the Red River Valley Potato Research Farm at Grand Forks for three seasons showed little or no hollow heart in Goldrush, but a fairly large amount in several other popular russet varieties. Some other outstanding characteristics are good scab resistance and some resistance to both *Verticillium* wilt and blackspot bruising.

This new russet variety bakes and boils very white but in some cases might have a slight waxy texture. Goldrush has an excellent flavor and has extremely white flesh, both before and after cooking.

It would appear that because of its excellent culinary characteristics and hollow heart resistance, this new russet variety should be well adapted for the production of count carton sized potatoes grown in the Red River Valley for

restaurant and home consumption. Previous russet varieties have been limited for this use because of their susceptibility to hollow heart. Hollow heart is an unpredictable physiological disease caused mainly by excessive moisture during the growing season.

Goldrush shows typical symptoms of most major diseases, including mosaic caused by potato virus Y and bacterial ring rot, which will be an aid to certification officials. (Some varieties are symptomless carriers and, therefore, major problems for growers.) With proper disease management and timely roguing, few problems should occur in growing this variety for seed certification.

Preliminary tests by processors and pilot-scale processing by the Potato Research Laboratory, followed by tests by the Department of Food and Nutrition at NDSU, indicate that Goldrush could be used for the production of frozen french fries. Most tests indicate Goldrush was comparable to Russet Burbank in processing for frozen french fries. Tests so far indicate that Goldrush can be stored for processing and is not susceptible to post-harvest storage diseases.

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