UF IFAS Extension UNIVERSITY of FLORIDA

HS1299

University of Florida Potato Variety Trial Spotlight: 'Goldrush'[1]

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General Comments

'Goldrush' is a russet potato variety commonly grown for the fresh potato market particularly for baking and boiling. It was selected from the progeny of a cross between ND450-3Russ and Lemhi Russet at North Dakota State University (Johansen et al. 1993). It was released in 1992 from the North Dakota Agricultural Experiment Station. 'Goldrush' demonstrates high yield and good tuber characteristics compared to its commercial standard 'Atlantic'. Tuber production and quality results provided in this spotlight are summarized from various trials conducted by the UF/IFAS Hastings Agricultural and Extension Center from 2005 to 2014.

General Characteristics

'Goldrush' tubers have a brown skin with oblong shape and white flesh color (Figure 1). According to Florida rating codes for potato tuber characteristics (Table 1), the tubers have a good appearance with a heavily russeted skin and intermediate to shallow eye depth. 'Goldrush' has demonstrated high yield potential under Florida production conditions (Tables 2 and 3). On average, marketable yield is 262 cwt/acre, approximately 3% below the commercial standard 'Atlantic', with 80% of the tubers produced found between classes A1 and A3 size distribution classes. It has a low to medium specific gravity of 1.063 (Table 2).

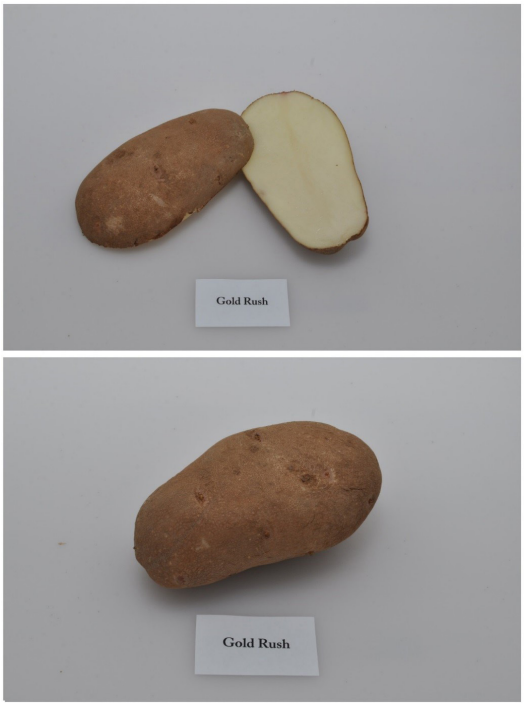

Figure 1. Typical tuber and internal flesh color of 'Goldrush' variety. Credits: Lincoln Zotarelli, UF/IFAS

Diseases

'Goldrush' demonstrates a slight susceptibility to corky ringspot and internal heat necrosis under Florida conditions (Table 3). It is resistant to common scab (*Streptomyces scabies*) and moderately resistant to Verticillium wilt (*Verticillium albo-atrum* and *Verticillium dahliae*), silver

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scurf (*Helminthosporium solani*), and blackspot bruising. 'Goldrush' is susceptible to most common potato viruses and other diseases such as mosaic, early blight (*Alternaria solani*), late blight (*Phytophthora infestans*), soft rot (*Pectobacterium* spp.), and fusarium dry rot (*Fusarum* spp.). The standard UF/IFAS Extension-recommended disease and weed control program described under "Potato Production" (Chapter 13 of the *Vegetable Production Handbook for Florida* http://edis.ifas.ufl.edu/cv131) should be followed.

Season Length and Growth

'Goldrush' is a medium maturing cultivar under Florida growing conditions. Season length was 96 days on average from planting to harvest. This depended on weather conditions during the growing season. The plants should be harvested two to three weeks after vine kill to improve tuber maturation and skin set. Potatoes with proper skin set maintain better skin color, lose less weight in storage, and are more resistant to bruising and soft rot. For more information about vine killing on potatoes, see *Potato Vine Killing or Desiccation* described in Zotarelli et al. (2011). Late in the season, tuber size should be checked regularly to harvest tubers with desirable, marketable size. Soil moisture should be managed late in the season to avoid high soil moisture conditions that cause enlarged lenticels and delayed skin set.

Fertilization

UF/IFAS trial plots are normally fertilized with 200 to 230 lb/A of N. The first application of 100 lb/A of N (granular) is typically incorporated in the bed prior to planting, followed by one or two side dress fertilizer applications at emergence and/or at tuber initiation. Phosphorus and potassium applications follow the UF/IFAS guidelines described in Liu et al. (2016) and normally range between 45 to 100 lb/A of P_2O_5 and 170 to 235 lb/A of K_2O.

Planting

A seed piece of 2.5 to 3 oz is recommended for planting. This variety should be planted with 40 inches between rows and 8 inches between plants, at 3 to 4 inches deep. A seed rate of 2,000 to 3,000 lb/acre of seed is expected.

Other Information

For additional information on cultivation and weed and disease management, see the "Potato Production" chapter of the *Vegetable Production Handbook* available at http://edis.ifas.ufl.edu/cv131.

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Table 1. Florida's rating codes for potato vine maturity and tuber characteristics at harvest.

Tuber Characteristics[1]							
Rating Code	**Vine Maturity**	**Internal Flesh Color**	**Skin Color**	**Skin Texture**	**Tuber Shape**	**Eye Depth**	**Overall Appearance**
1	dead	white	purple	partial russet	round	very deep	very poor
2	+-	cream	red	heavy russet	mostly round	--	--
3	yellow and dying	light yellow	pink	moderate russet	round to oblong	deep	poor
4	+-	medium yellow	dark brown	light russet	mostly oblong	--	--
5	moderately senesced	dark yellow	brown	netted	oblong	intermediate	fair
6	+-	pink	tan	slightly netted	oblong to long	--	--
7	starting to senesce	red	buff	moderately smooth	mostly long	shallow	good
8	+-	blue	white	smooth	long	--	--
9	green and vigorous	purple	cream	very smooth	cylindrical	very shallow	excellent

[1] Adapted from Hutchinson, C. M., et al. (2003) and Sisson, J.A. and G.A. Porter (2002).

Table 2. Summary of production statistics and specific gravity of 'Goldrush' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2005 to 2014, excluding 2012.

Year	**Total Yield (cwt/acre)**	**Marketable yield[1] (cwt/acre)**	**% of STD**	**Standard**	**Size Class (Distribution by class %)[2]**						**Range %**		**Specific Gravity**
					C	**B**	**A1**	**A2**	**A3**	**A4**	**A1 to A3**	**Culls**	
2005	295	250	80%	Atlantic	2	13	69	14	2	0	85	1	1.067
2006	379	320	92%	Atlantic	1	12	72	13	3	0	87	3	1.067
2007	396	323	82%	Atlantic	2	13	74	8	3	0	85	4	1.059
2008	353	251	127%	Atlantic	2	24	58	16	0	0	74	4	1.069
2009	400	338	139%	Atlantic	2	12	80	6	0	0	86	3	1.056
2010	344	238	91%	Atlantic	5	23	67	5	0	0	72	5	1.063
2011	319	239	88%	Atlantic	3	16	77	4	0	0	80	7	1.069
2013	289	232	93%	Atlantic	2	13	69	11	4	0	85	4	1.058
2014	289	172	76%	Atlantic	5	32	57	5	1	0	63	6	1.055
Average	**340**	**262**	**97%**		**3**	**17**	**69**	**9**	**2**	**0**	**80**	**4**	**1.063**

[1] Marketable yield: Sum of size classes A1 to A3.
[2] Size classes: C = 0.5 to 1.5 inches, B = 1.5 to 1 7/8 inches, A1 = 1 7/8 to 2.5 inches, A2 = 2.5 to 3.25 inches, A3 = 3.25 to 4 inches, A4 >4 inches; Size distribution by class: Class (wt)/(Total Yield [wt] – culls [wt])
* classification = <1 7/8 inches (C and B included in this classification)

Table 3. Vine maturity, tuber characteristics, and internal tuber defects of 'Goldrush' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2005 to 2014, excluding 2012.

Year	Vine Maturity (vine kill)	Tuber Characteristics[1]						Internal Defects[2]			
		Internal Flesh color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	HH	BR	CRS	IHN
2005	7	2	5	2	5	8	7	0	0	0	0
2006	9	2	4	2	5	7	7	0	0	0	0
2007	6	1	4	2	6	7	7	0	0	0	0
2008	6	1	5	3	5	7	6	0	0	0	0
2009	4	2	5	3	4	5	6	0	0	0	0
2010	8	1	5	2	5	6	7	0	0	0	0
2011	3	*	*	*	*	*	6	0	0	28	8
2013	6	*	*	*	*	*	6	0	0	0	0
2014	2	1	5	3	6	7	6	0	0	0	0
Average	**6**	**1**	**5**	**2**	**5**	**6**	**6**	**0**	**0**	**3**	**1**

[1] See rating system outlined in Florida Rating Code Table (Table 1).
[2] Percent tuber defects. HH = hollow heart, BR = brown rot, CRS = corky ring spot, IHN = internal heat necrosis.
*Missing data