

University of Florida Potato Variety Trials Spotlight: ‘Yukon Gold’¹

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There are several potato varieties available in the market today. Most of them have been bred or developed in production regions other than Florida. The University of Florida Potato Variety Evaluation Program screens new germplasm from public and private breeding programs and identifies the most promising cultivars for commercial potential considering broad adaptability to Florida climate and conditions and market purpose: processing, fresh-market and specialty-type varieties. Over the years, the UF/IFAS Potato Variety Program has become an important reference to vegetable growers, seed producers, processors, crop insurance agencies, and brokers looking for alternative potato varieties to explore different markets, improved characteristics, and yield. This UF/Potato Variety Trials Spotlight presents a summary of the field evaluation of tuber yield and quality performance of the potato variety ‘Yukon Gold’ cultivated in Florida.

General Comments

‘Yukon Gold’ is a fresh market potato variety selected from the progeny of a cross between W5279-4 and ‘Norgleam’ and tested under the pedigree G6666-4Y. It was released jointly by Agriculture Canada and Ontario Agricultural College, University of Guelph, Canada in 1981 (Johnston and Rowberry 1981). ‘Yukon Gold’ demonstrates high yield and good tuber characteristics compared to the commercial

standard ‘La Chipper’. Tuber production and quality results provided in this spotlight are from Florida Potato Variety Trials conducted at the UF/IFAS Hastings Agricultural Extension Center between 1999 and 2019.

General Characteristics

‘Yukon Gold’ tubers have a buff-colored, slightly netted skin with a medium-yellow flesh color (Figure 1). According to Florida’s rating codes for potato tuber characteristics (Table 1), the tubers are round to oblong oval-shaped and have intermediate to shallow pink eyes that are not well distributed, unlike other buff-skinned and yellow-fleshed varieties. ‘Yukon Gold’ has high yield potential with a low to medium specific gravity of 1.071 (Tables 2 and 3) under Florida production conditions. The variety shows reduced dormancy (time required for sprout emergence). Marketable yield was 214 cwt/acre on average, approximately 7% less than ‘La Chipper’. Approximately 85% of the tubers were between the A1 and A3 tuber size classification (Table 2).

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Figure 1. Typical tuber and internal flesh color of 'Yukon Gold' potato variety.

Credits: Lincoln Zotarelli, UF/IFAS

Diseases

'Yukon Gold' is resistant to mild mosaic, moderately resistant to leafroll virus, and susceptible to virus Y, common scab (*Streptomyces scabies*) (Johnston and Rowberry 1981), PVY, early blight (*Alternaria solani*), dry rot (*Fusarium* spp.), silver scurf (*Helminthosporium solani*), black scurf (*Rhizoctonia solani*), and soft rot (*Pectobacterium* spp.) in storage (Nebraska Institute of Agriculture and Natural Resources 2017). In all trials, 'Yukon Gold' showed a slight susceptibility of 1% to internal heat necrosis, and less than 0.5% to corky ring spot and hollow heart under Florida conditions (Table 3). The standard UF/IFAS Extension recommended disease and weed control program described under *Potato Production* (Chapter 14 of the *Vegetable Production Handbook for Florida*, <http://edis.ifas.ufl.edu/cv131>) should be followed.

Season Length and Growth

'Yukon Gold' is an early- to medium-maturing variety under Florida growing conditions. Season length was 95 days on average from planting to harvest. This depended on weather conditions during the growing season. The plants should be harvested two 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* (Zotarelli et al. 2016). 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/ac of N. The first application of 100 lb/ac 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. (2020) and normally range between 45 to 100 lb/ac of P_2O_5 and 170 to 235 lb/ac of K_2O .

Planting

A seed piece of 2.5 to 3 oz is recommended for planting. Crop 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. Summary of production statistics and specific gravity of ‘Yukon Gold’ potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1999 to 2019.

Year	Total Yield (cwt/ac)	Marketable Yield (cwt/ac) ¹	% of Standard	Standard	Size Class (Distribution by Class %) ²						Range %		Specific Gravity
					C	B	A1	A2	A3	A4	A1 to A3	Culls	
1999	422	392	114%	LAC	*	7*	73	20	0	0	93	5	1.070
2001	325	277	91%	LAC	*	2*	37	42	19	1	97	12	1.078
2002	298	258	88%	LAC	*	4*	40	49	8	0	96	9	1.074
2003	391	303	101%	LAC	*	14*	42	31	13	0	86	11	1.076
2004	311	217	95%	LAC	16	11	57	16	2	0	74	6	1.076
2005	226	180	72%	LAC	2	15	64	18	1	0	83	4	1.073
2006	342	275	89%	LAC	1	8	71	20	0	0	91	11	1.069
2007	325	286	100%	LAC	1	7	65	20	6	0	92	4	1.073
2008	280	213	111%	LAC	2	16	67	13	3	0	82	7	1.082
2009	361	268	105%	LAC	1	5	48	23	23	0	93	21	1.070
2010	326	250	131%	LAC	2	13	72	10	3	0	85	10	1.067
2011	348	248	88%	LAC	3	13	56	15	13	0	83	14	1.068
2012	275	179	74%	LAC	2	9	48	28	12	0	89	27	1.066
2013	129	45	49%	LAC	7	17	68	8	0	0	76	43	1.061
2014	271	145	100%	LAC	4	26	61	7	2	0	70	24	1.063
2015	196	144	80%	LAC	4	14	62	10	10	0	82	18	1.058
2016	194	117	99%	LAC	5	18	70	4	4	0	77	25	1.070
2017	169	114	n.a.	-	5	17	68	4	5	0	77	15	1.070
2018	214	158	n.a.	-	5	14	71	5	4	0	80	9	1.071
2019	263	207	n.a.	-	4	7	29	57	3	0	89	12	1.078
Average	283	214	93%	LAC	4	13	58	20	7	0	85	14	1.071

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])
n.a. = not available

Table 2. Florida rating codes for potato vine maturity and tuber characteristics.

Tuber Characteristics ¹							
Rating Code	Vine Maturity	Internal Flesh Color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Tuber 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 et al. (2003) and Sisson and Porter (2002)

Table 3. Yield, vine maturity, tuber characteristics, and internal tuber defects of ‘Yukon Gold’ potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1999 to 2019.

Year	Vine Maturity	Tuber Characteristics ¹						Internal Defects ²			
		Internal Flesh Color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	HH	BR	CRS	IHN
1999	*	*	7	5	3	4	4	2	0	0	1
2001	1	3	8	7	3	6	6	0	0	5	0
2002	2	3	7	7	3	7	6	0	1	0	5
2003	5	4	7	7	3	6	6	0	0	0	1
2004	5	4	7	7	3	6	6	3	0	0	0
2005	4	4	7	6	3	5	5	0	0	0	0
2006	7	2	4	4	2	3	6	1	0	0	0
2007	5	4	7	6	4	6	6	0	0	0	0
2008	7	3	7	6	2	8	5	0	0	0	3
2009	4	4	7	6	3	5	*	0	0	0	0
2010	7	4	7	7	3	5	6	0	0	0	0
2011	7	5	7	6	4	6	5	0	0	0	3
2012	9	4	7	6	3	4	5	0	0	0	0
2013	5	5	7	7	3	5	5	0	0	0	0
2014	3	5	7	6	3	6	5	0	0	0	0
2015	6	2	8	8	3	8	6	1	0	0	0
2016	6	3	8	8	3	7	7	0	0	3	2
2017	7	3	8	7	3	7	6	0	0	0	0
2018	5	3	7	8	3	7	8	0	0	0	0
2019	5	3	8	9	3	7	8	0	0	0	1
Average	5	4	7	7	3	6	6	0	0	0	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.

*not available