

University of Florida Potato Variety Trials Spotlight: ‘Peter Wilcox’¹

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Introduction

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 ‘Peter Wilcox’ cultivated in Florida.

General Comments

‘Peter Wilcox’ is a fresh-market potato variety selected from progeny of a cross between B0810-1 and B0918-5 and tested under the pedigree B1816-5 by K. G. Haynes. It was jointly released by the United States Department of Agriculture, the North Carolina Agricultural Research Service, the

Agricultural Experiment Stations of New Jersey, Pennsylvania, Florida, and New York, and the Maine Agricultural and Forest Experiment Station in 2007. ‘Peter Wilcox’ demonstrates good tuber characteristics and high yields. Yields are slightly lower than the commercial standard ‘Red LaSoda’ (RLAS). 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 2001 and 2019.

General Characteristics

‘Peter Wilcox’ has a semi-erect plant habit with intermediate foliage. Tubers have a purple and slightly netted skin with a medium-yellow flesh (Figure 1), according to Florida rating codes for potato tuber characteristics (Table 1). The tubers have a fair to good appearance with round to oblong shape and intermediate to shallow eye depth with apical distribution (Tables 1 and 3). The tubers have a low to medium specific gravity of 1.066 (Table 2) with a long dormancy (time required for sprout emergence). Tuber carotenoid concentration was shown to be higher than that for ‘Yukon Gold’ (Haynes et al. 2015). ‘Peter Wilcox’ has high yield potential under Florida production conditions with 221 cwt/acre marketable yield and 75% of the tubers

1. This document is HS1295, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date May 2017. Revised February 2021. Visit the EDIS website at <https://edis.ifas.ufl.edu>.

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produced in tuber size distribution classes A1 and A3 (Table 2).



Figure 1. Typical tuber and internal flesh color of 'Peter Wilcox' potato variety.

Credits: Lincoln Zotarelli, UF/IFAS

Diseases

'Peter Wilcox' demonstrates no incidence of hollow heart, brown rot, corky ringspot, or internal heat necrosis (Table 3). It is resistant to powdery scab (*Spongospora subterranea*) and susceptible to late blight (*Phytophthora infestans*), early blight (*Alternaria solani*), common scab (*Streptomyces scabies*), potato virus Y, and potato virus S. The cultivar is highly susceptible to Verticillium wilt (*Verticillium albo-atrum* and *Verticillium dahliae*). 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

'Peter Wilcox' is a medium-maturing cultivar under Florida growing conditions. Season length was 94 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* (Zotarelli et al. 2016). Late in the season, tuber size should be checked regularly in order 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. 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 *Potato Production*, chapter 14 of the *Vegetable Production Handbook*, available at <https://edis.ifas.ufl.edu/cv131>.

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Table 1. Florida rating codes for potato vine maturity and tuber characteristics.

Rating Code	Tuber Characteristics ¹						
	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 russet	--	--
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 2. Summary of production statistics and specific gravity of 'Peter Wilcox', a purple-skinned fresh-market potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2001 to 2019.

Year	Total Yield (cwt/ac)	Marketable yield ¹ (cwt/ac)	% of STD	Standard	Size Class (Distribution by class %) ²						Range %		Specific Gravity
					C	B	A1	A2	A3	A4	A1 to A3	Culls	
2001	313	259	93	'Red Lasoda'	0	14*	77	8	1	0	86	4	1.069
2002	339	296	87	'Red Lasoda'	0	10*	72	17	1	0	90	3	1.064
2003	461	400	95	'Red Lasoda'	5	5	51	33	6	0	90	4	1.062
2004	330	248	76	'Red Lasoda'	12	12	70	6	0	0	75	1	1.076
2005	272	197	66	'Red Lasoda'	1	23	75	1	0	0	76	5	1.072
2006	333	273	68	'Red Lasoda'	2	15	84	0	0	0	84	3	1.070
2007	354	278	80	'Red Lasoda'	2	19	76	3	0	0	79	0	1.067
2008	256	150	78	'Red Lasoda'	4	35	59	2	0	0	61	3	1.071
2009	287	207	61	'Red Lasoda'	2	13	65	17	3	0	85	20	1.062
2010	286	110	47	'Red Lasoda'	10	50	39	0	0	0	39	3	1.060
2011	351	245	109	'Red Lasoda'	5	21	74	0	0	0	74	10	1.062
2012	311	214	124	'Red Lasoda'	3	17	68	12	0	0	80	15	1.060
2013	229	165	154	'Red Lasoda'	4	17	73	6	0	0	79	10	1.055
2014	339	208	93	'Red Lasoda'	4	32	63	1	0	0	64	4	1.062
2015	109	61	43	'Red Lasoda'	5	35	60	0	0	0	60	7	1.060
2016	282	189	208	'Red Lasoda'	5	26	68	1	0	0	69	3	1.069
2017	262	184	147	'Red Lasoda'	4	22	69	4	1	0	74	7	1.062
2018	265	198	113	'Red Lasoda'	4	18	76	2	0	0	78	4	1.07
2019	333	319	157	'Red Lasoda'	4	12	42	41	0	0	84	4	1.072
Average	301	221	100	'Red Lasoda'	4	22	66	8	1	0	75	6	1.066

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 ‘Peter Wilcox’, a purple-skinned fresh-market potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2001 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
2001	3	4	1	6	3	7	6	0	0	0	0
2002	4	4	1	7	3	7	6	0	0	0	0
2003	8	5	1	5	3	6	6	3	0	0	0
2004	6	4	1	6	3	6	6	1	0	0	0
2005	6	5	1	5	4	5	6	0	0	0	0
2006	8	4	2	6	3	7	6	0	0	0	0
2007	6	4	1	7	4	5	6	0	0	0	0
2008	7	5	1	7	3	6	6	0	0	0	0
2009	6	4	1	6	4	4	6	0	0	0	0
2010	7	4	1	6	4	7	6	0	0	0	0
2011	7	4	1	6	4	3	6	0	0	0	0
2012	9	5	1	6	4	4	6	0	1	0	0
2013	7	3	1	5	2	4	5	0	0	1	0
2014	4	5	1	7	3	4	8	0	0	0	0
2015	5	na ³	na	na	na	na	6	0	0	0	0
2016	6	3	1	7	3	7	7	0	0	3	1
2017	7	3	1	6	4	7	6	0	0	0	0
2018	7	4	1	8	3	8	7	0	0	0	0
2019	6	3	1	8	3	8	7	0	0	0	0
Average	6	4	1	6	3	6	6	0	0	0	0

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.

³ na = data not available