

University of Florida Potato Variety Trials Spotlight: 'Red LaSoda'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 'Red LaSoda' cultivated in Florida.

General Comments

'Red LaSoda' is a red-skinned fresh-market potato standard for Florida. 'Red LaSoda' was first observed in 1949 as a deep red mutant of LaSoda, a progeny of Triumph and Katahdin, in the Louisiana potato breeding program. 'Red LaSoda' was released by the USDA and the Louisiana

Agricultural Experiment Station in 1953 (Webb and Miller 1954). Production and quality results provided here are summarized from various fresh-market trials conducted by the UF/IFAS Hastings Agricultural Extension Center from 1998 to 2019.

General Characteristics

'Red LaSoda' plants have a spreading growth habit with high early vigor that gives them a competitive advantage over many weed species. Tubers have a red and slightly netted skin with white flesh (Figure 1) according to Florida's rating codes for potato tuber characteristics (Table 1). The tubers are uniform with round to oblong tuber shape and deep eye depth. The variety has good yield potential and is adapted to Florida growing conditions (Tables 2 and 3). The variety demonstrated similar marketable yield and good tuber characteristics compared to the commercial standard 'LaChipper' (Table 2). On average, 86% of the tubers produced in tuber size distribution classes A1 to A3.

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Figure 1. Typical tuber skin and internal flesh color of 'Red LaSoda'.
Credits: C. Hutchinson, UF/IFAS

Diseases

'Red LaSoda' is susceptible to scab, early blight (*Alternaria solani*), late blight (*Phytophthora infestans*), corky ring spot, and bacterial wilt (*Ralstonia solanacearu*). In all trials, the variety showed slight susceptibility of 1% to hollow heart (Table 3). The UF/IFAS Extension recommended disease and weed control program is described under *Potato Production* (Chapter 14 of the *Vegetable Production Handbook for Florida*, <http://edis.ifas.ufl.edu/cv131>).

Season Length and Growth

'Red LaSoda' performs as early- to midseason-maturing variety under Florida growing conditions. Season lengths range from 81 to 115 days from planting to harvesting with an average season length of 95 days, depending on growing conditions during the 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 enlarged lenticels and delayed skin set.

Fertilization

University of Florida trial plots are normally fertilized with 200 to 230 lb/acre N. The first application of 100 lb/acre 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 , depending on the soil test results.

Planting

A seed piece of 2½ 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. Closer in-row spacing will reduce harvested tuber size. A seed rate of 2,000 to 3,000 lb/acre 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 rating codes for potato vine maturity at harvest 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 2. Summary of production statistics and specific gravity of 'Red LaSoda' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1998 to 2019.

Year	Total Yield	Marketable Yield ¹	% of STD	Standard	Size Class (Distribution by Class %) ²						Range %		Specific Gravity
					C	B	A1	A2	A3	A4	A1 to A3	Culls	
1998	469	352	101	LAC	0	24	23	35	18	0	75	22	1.058
1999	396	329	106	LAC	0	17	64	18	1	0	83	13	1.053
2001	305	279	109	LAC	0	3	42	42	13	0	97	6	1.064
2002	401	363	100	LAC	0	2	40	51	6	1	96	6	1.062
2003	523	374	99	LAC	9	7	38	30	16	0	84	15	1.059
2004	409	337	110	LAC	7	5	53	27	8	0	88	7	1.066
2005	334	303	123	LAC	1	6	63	26	5	0	93	3	1.065
2006	421	385	112	LAC	1	5	68	27	0	0	95	3	1.058
2007	447	388	129	LAC	1	8	64	16	11	0	91	4	1.058
2008	341	272	117	LAC	2	11	56	25	7	0	88	8	1.061
2009	359	279	99	LAC	2	8	69	11	11	0	90	14	1.058
2010	311	232	152	LAC	2	8	89	1	0	0	90	17	1.052
2011	418	301	106	LAC	3	13	55	17	12	0	84	14	1.055
2012	199	48	23	LAC	5	33	41	11	10	0	62	64	1.054
2013	210	176	70	LAC	8	3	61	13	16	0	90	8	1.058
2014	250	163	114	LAC	5	25	70	0	0	0	70	7	1.060
2015	332	258	77	LAC	4	10	67	11	9	0	87	12	1.046
2016	129	70	57	LAC	3	20	71	2	4	0	77	34	1.056
2017	227	142	n.a.	-	5	12	69	5	9	0	83	22	1.057
2018	233	197	n.a.	-	3	9	77	8	3	0	88	4	1.059
2019	344	299	n.a.	-	3	4	38	51	4	0	93	7	1.064
Average	336	264	100		3	11	58	20	8	0	86	14	1.058

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) n.a. not available

Table 3. Tuber characteristics and internal tuber defects of 'Red LaSoda' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1998 to 2019.

Year	Tuber Characteristics ¹						Internal Defects ²			
	Internal Flesh Color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Tuber Appearance	HH	BR	CRS	IHN
1998	0	2	8	2	3	6	0	0	0	0
1999	0	2	7	3	3	4	1	0	0	0
2001	2	3	7	3	5	4	0	0	0	0
2002	1	3	7	3	4	5	0	0	5	3
2003	1	2	7	3	4	5	1	0	0	0
2004	1	2	7	3	4	6	2	0	0	0
2005	2	2	7	3	4	6	2	0	0	0
2006	0	0	0	0	0	6	0	0	0	0
2007	1	2	7	3	3	6	0	0	0	0
2008	2	3	7	2	6	5	0	0	0	3
2009	1	2	7	4	3	6	0	0	0	0
2010	1	2	7	3	3	6	0	0	0	0
2011	1	3	7	3	3	5	1	0	0	0
2012	1	2	7	3	3	6	0	0	0	0
2013	1	2	7	3	3	6	0	0	0	0
2014	1	2	7	3	3	7	0	0	0	0
2015	2	2	8	3	7	6	1	0	0	0
2016	1	1	5	1	4	7	1	0	1	0
2017	1	3	8	5	6	7	0	0	1	0
2018	1	2	8	3	7	8	1	0	0	0
2019	1	2	9	3	5	6	1	0	0	0
Average	1	2	7	3	4	6	1	0	0	0

¹See rating system outlined in Florida Rating Code Table (Table 1).

²Percent tuber defects. HH = hollow heart, BR = brown rot, CRS = corky ring spot, IHN = internal heat necrosis.