UF IFAS Extension UNIVERSITY of FLORIDA

HS1297

University of Florida Potato Variety Trials Spotlight: 'LaChipper'[1]

Rodrick Z. Mwatuwa, Christian T. Christensen, Pam Solano, and Lincoln Zotarelli[2]

General Comments

'LaChipper' is a potato variety that is commonly grown for the fresh potato market in Florida. Under different growing conditions 'LaChipper' is suited for chip processing. It was selected from progeny of a cross between Green Mountain and Cayuga and tested under the pedigree L91-78. It was released by the Department of Horticulture and Landscape Architecture, Louisiana Agricultural Experiment Station, Baton Rouge, LA in October of 1962. 'LaChipper' demonstrates high yield and good tuber characteristics compared to the commercial standard 'Atlantic'. 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 1998 and 2016.

General Characteristics

'LaChipper' tubers are moderately smooth with a round to oblong shape (Figure 1). According to Florida's rating codes for potato tuber characteristics (Table 1), the tubers have a fair to good appearance with buff skin color, white flesh, and deep to intermediate eye depth (Table 3). The variety has greater yield potential under Florida production conditions (Tables 2 and 3). On average, the marketable yield is 256 cwt/acre, approximately 12% less than the commercial standard 'Atlantic', with 83% of the tubers produced found between A1 and A3 tuber size classifications (Table 2).

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

Diseases

'LaChipper' demonstrates low incidence of hollow heart (1%) and corky ring spot (2%) under Florida conditions (Table 3). It has some resistance to late blight (*Phytophthora infestans*) and is moderately susceptible to common scab

1. This document is HS1297, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date May 2017. Visit the EDIS website at http://edis.ifas.ufl.edu.

2. Rodrick Z. Mwatuwa, research assistant; Christian T. Christensen, postdoctoral research associate; Pam Solano, biological scientist; Lincoln Zotarelli, assistant professor; Horticultural Sciences Department, UF/IFAS Extension, Gainesville, FL 32611.

(*Streptomyces scabies*). Exposure to air pollution can result in defoliation and reduction in tuber yield.

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

'LaChipper' is a medium maturing cultivar under Florida growing conditions. Season length is 95 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 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. The 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.

References

Hutchinson, C. M., J. M. White, D. M., Gergela, P. A. Solano, K. G. Haynes, R. Wenrich, and C. S. Lippi. 2003. "Performance of chip processing potato varieties in north-eastern Florida." *HortTechnology*, 13(4), 706–711.

Liu, G., E.H. Simonne, K.T. Morgan, G.J. Hochmuth, M. Ozores-Hampton, and S. Agehara. 2016. "Fertilizer management for vegetable production in Florida." In: *Vegetable Production Handbook of Florida 2016—17*. J.S. Freeman et al. (eds). Farm Media Journal. p.3–10.

Miller, Julian C., James F. Fontenot, and W. A. Young. "LaRouge and LaChipper two new potato varieties released by Louisiana." *American Potato Journal* 40, no. 4 (1963): 130–132.

Sisson, J.A. and G.A. Porter. 2002. "Performance evaluations of potato clones and varieties in the northeastern states-1999." Maine Agr. For. Expt. Sta., Misc. Publ. 751.

Zotarelli, L., S. Sargent, P. Dittmar, M. Makani. 2011. *Potato vine Killing or Desiccation*. HS181. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: http://edis.ifas.ufl.edu/hs181

Zotarelli, L., J. P. Dittmar, P. D. Roberts, P. Stansly, H. A. Smith, and S. E. Webb, 2016. *Chapter 13. Potato Production. Vegetable Production Handbook for Florida, 2015–2016 Edition*. HS733. Gainesville: University of Florida Institute of Food and Agricultural Sciences. http://edis.ifas.ufl.edu/cv131

Table 1. 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, C. M., et al. (2003) and Sisson, J.A. and G.A. Porter (2002).

Table 2. Summary of production statistics and specific gravity of 'LaChipper' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1998 to 2016.

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	391	333	96	Atlantic	12	4	30	40	16	0	86	12	1.068
1999	375	334	88	Atlantic	8	3	64	25	1	0	89	8	1.063
2000	281	245	72	Atlantic	0	17	32	27	26	0	87	8	1.070
2001	297	272	81	Atlantic	0	4	49	38	9	0	96	5	1.072
2002	324	302	92	Atlantic	0	4	43	44	9	0	96	3	1.068
2003	436	321	*	Atlantic	12	9	46	18	15	0	79	7	1.068
2004	344	234	101	Atlantic	17	11	57	13	2	0	72	6	1.074
2005	302	246	79	Atlantic	1	11	77	10	1	0	88	7	1.071
2006	398	337	99	Atlantic	1	10	70	14	4	0	89	5	1.071
2007	374	310	85	Atlantic	2	12	69	14	3	0	87	5	1.070
2008	342	240	111	Atlantic	3	24	67	6	1	0	73	4	1.073
2009	329	248	124	Atlantic	3	16	64	13	4	0	82	11	1.064
2010	367	282	102	Atlantic	3	17	59	16	5	0	80	4	1.066
2011	349	294	111	Atlantic	2	8	67	12	10	0	89	6	1.067
2012	353	274	84	Atlantic	2	6	56	21	15	0	92	15	1.067
2013	317	262	91	Atlantic	3	10	64	11	11	0	86	6	1.067
2014	221	108	47	Atlantic	6	32	62	0	0	0	62	25	1.061
2015	162	109	49	Atlantic	3	25	71	0	0	0	71	5	1.079
2016	178	112	77	Atlantic	4	15	71	5	6	0	81	22	1.063
Average	**323**	**256**	**88**		**4**	**13**	**59**	**17**	**7**	**0**	**83**	**9**	**1.069**

[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])
*Missing data

Table 3. Vine maturity, tuber characteristics, and internal tuber defects of 'LaChipper' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1998 to 2016.

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
1998	*	*	8	8	3	5	6	*	*	*	*
1999	*	*	8	6	2	4	6	0	0	0	0
2000	*	*	8	8	3	5	6	0	0	0	0
2001	1	1	7	7	3	5	6	0	0	2	0
2002	3	1	8	7	3	6	7	0	0	10	1
2003	4	1	8	7	2	6	6	3	0	0	0
2004	6	3	8	7	2	5	6	1	0	0	0
2005	6	1	9	8	3	5	6	0	0	0	0
2006	7	1	8	8	4	6	7	0	0	0	0
2007	6	1	7	7	3	3	7	1	0	0	0
2008	6	2	8	8	2	6	6	0	0	0	0
2009	4	1	6	7	3	3	7	0	0	0	0
2010	7	1	8	8	4	3	7	1	0	0	0
2011	3	*	*	*	*	*	6	0	0	28	0
2012	5	*	*	*	*	*	6	0	0	0	0
2013	6	*	*	*	*	*	6	5	0	0	0
2014	2	1	8	7	3	4	5	2	0	0	0
2015	5	0	0	0	0	0	7	0	0	0	0
2016	6	0	3	3	1	2	7	0	0	1	0
Average	**5**	**1**	**7**	**7**	**3**	**4**	**6**	**1**	**0**	**2**	**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.
*Missing data