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

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General Comments

'Adirondack Blue' is a potato variety commonly grown for the specialty potato market. It was selected from progeny of a cross between N40-1 and NY96 and tested under the pedigree S45-5 by Robert Plaisted, Ken Paddock, and Walter De Jong at Cornell University. It was released by the New York State College of Agriculture and Life Sciences at Cornell University in 2003. Tuber production and quality results provided in this spotlight are summarized from variety trials conducted at the UF/IFAS Hastings Agricultural and Extension Center from 2011 to 2016.

General Characteristics

'Adirondack Blue' tubers have purple and slightly netted skin with a purple flesh (Figure 1). The tubers are mostly oblong with a fair to good appearance and intermediate eye depth, according to Florida's rating codes for potato tuber characteristics (Tables 1 and 3). The variety has short dormancy (time required for sprout emergence) with a low specific gravity under Florida growing conditions (Table 2). The variety demonstrated similar marketable yields and good tuber characteristics compared to the commercial standard 'Red LaSoda' (Table 2). On average, 72% of the tubers produced were from the tuber size distribution classes A1 to A3.

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

Diseases

'Adirondack Blue' exhibits slight susceptibility to hollow heart and no susceptibility to internal heat necrosis, corky ring spot, or brown rot under Florida conditions (Table 3). This variety is moderately susceptible to silver scurf

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(*Helminthosporium solani*), common scab (*Streptomyces scabies*), golden nematode (*Globodera rostochiensis* Ro1), pink rot (*Phytophthora erythroseptica*), leafhopper (*Empoasca fabae*), Colorado potato beetles [*Leptinotarsa decemlineata* (Say)], and potato virus Y. It is highly susceptible to Fusarium dry rot (*Fusarum* spp.). 'Adirondack Blue' is highly resistant to foliar late blight (*Phytophthora infestans* strain US-23). 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

'Adirondack Blue' is a mid-season maturing variety under Florida growing conditions. Season length was 88 days on average from planting to harvest, depending on growing conditions during the 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* described in Zotarelli et al. (2011). 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/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 application 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. 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.

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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	yeallow 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 'Adirondack Blue', a fresh market potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2011 to 2016, excluding 2013.

Year	**Total Yield (cwt/A)**	**Marketable yield[1] (cwt/A)**	**% Standard**	**Standard**	**Size Class (Distribution by class %)[2]**						**Range %**		**Specific Gravity**
					C	**B**	**A1**	**A2**	**A3**	**A4**	**A1 to A3**	**Culls**	
2011	292	187	87	Red LaSoda	5	22	72	0	0	0	73	12	1.061
2012	130	61	28	Red LaSoda	0	13	87	0	0	0	87	46	1.054
2014	280	192	82	Red LaSoda	3	26	65	6	0	0	71	12	1.057
2015	158	78	106	Red LaSoda	8	35	56	1	0	0	57	14	1.052
2016	272	181	199	Red LaSoda	3	26	64	6	0	0	71	7	1.060
Average	**226**	**140**	**100**		**4**	**25**	**69**	**3**	**0**	**0**	**72**	**18**	**1.057**

[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 'Adirondack Blue' potato variety at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 2011 to 2016, excluding 2013.

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**
2011	6	9	1	6	4	3	5	0	0	0	0
2012	7	*	*	*	*	*	*	*	*	*	*
2014	3	9	1	6	5	6	5	3	0	0	0
2015	4	9	1	8	6	7	7	0	0	0	0
2016	6	9	1	7	4	5	6	0	0	1	0
Average	**5**	**9**	**1**	**7**	**5**	**5**	**6**	**1**	**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.
*not available.