

University of Florida Potato Variety Trials Spotlight: 'Atlantic'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/IFAS Potato Variety Trials Spotlight presents a summary of the field evaluation of tuber yield and quality performance of the potato variety 'Atlantic' cultivated in Florida.

General Comments

'Atlantic' is a white-skinned potato and the standard variety for chipping commonly cultivated in Florida (Figure 1). The cultivar was released as a white mutant of the USDA breeding program. It was selected from a cross of Wauseon and Lenape (UDSA seedling B5141-6). 'Atlantic' was released in July 1976 by the Agricultural Research Service of the USDA, the Florida Agricultural Experiment Station, the Virginia Truck and Ornamentals Research Station, the New Jersey Agricultural Experiment Station, and the

Maine Agricultural Experiment Station (Webb et al. 1978). Production and quality results provided in this spotlight are summarized from various trials conducted by the University of Florida over the past 22 years.

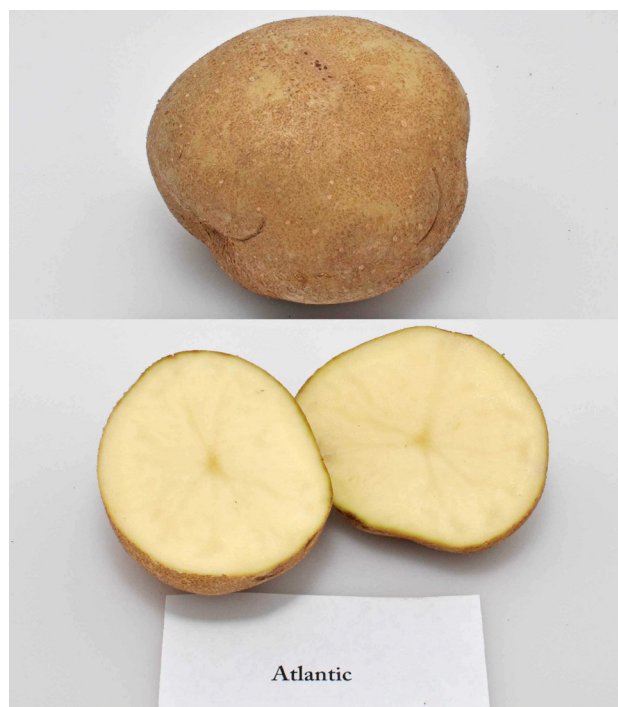


Figure 1. Typical tuber set and internal flesh color of 'Atlantic'. Credits: Lincoln Zotarelli, UF/IFAS

1. This document is HS1278, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date March 2016. Revised April 2020 and February 2021. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.
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General Characteristics

'Atlantic' tubers are smooth with an oval to round shape. Its white skin has light to heavy scaly net touch. In heavy soils or areas with high organic matter, the skin may be dark. The variety has shallow to intermediate deep-white eye and white internal flesh color. It is a high-yielding variety with an average specific gravity around 1.077, adapted for Florida growing conditions (Tables 1, 2, and 3).

Season Length and Growth

The length of time from planting to harvesting is approximately 85 to 110 days, depending on growing conditions during the season. For Florida conditions, the season length was on average 99 days. Late in the season, tuber size should be checked regularly. 'Atlantic' typically shows rapid vegetative growth between 40 and 75 days after planting (Rens et al. 2015). It matures during the middle to late portions of the season.

Fertilization

University of Florida trial plots were fertilized with 200 lb/acre of N, with 50 lb/acre of N (granular) incorporated into the beds prior to planting, followed by two split side-dress fertilizer applications of 75 lb/acre of N each at emergence and at tuber initiation. Phosphorus and potassium application follow the UF/IFAS guidelines described in Liu et al. (2019) 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 2½ to 3 oz is recommended for planting. The crop should be planted with 36 to 42 inches between rows, 7 to 10 inches between plants, and 3 to 4 inches deep. A seed rate of 2,000 to 3,000 lb/acre seed is expected.

Seed Source

Seed for the trial was provided from many sources, including Maine Farmer's Exchange (MFX), University of Maine, USDA-ARS Presque Isle, and Maine growers.

Diseases

The cultivar is tolerant to scab and Verticillium wilt; resistant to pinkeye; and highly resistant to Race A of golden nematode, virus X, and tuber net necrosis. Tubers are susceptible to internal heat necrosis, particularly in sandy soils and during warm, dry seasons. In some areas, hollow heart can be serious in large tubers (diameter >3 in),

especially when growing conditions fluctuate during the season.

Other Information

For additional information on cultivation and management, see the *Potato Production* chapter of the *Vegetable Production Handbook*, available at <https://edis.ifas.ufl.edu/cv131>.

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Table 1. Summary of production statistics and specific gravity of 'Atlantic' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL.

Year	Total Yield	Marketable Yield ¹	Size Class (Distribution by Class %) ²						Range %		Specific Gravity
	(cwt/A)	(cwt/A)	C	B	A1	A2	A3	A4	A1 to A3	Culls	
1998	371	336	n.a. ³	10*	40	37	13	0	90	6	1.079
1999	434	380	n.a.	12*	63	24	1	0	88	9	1.071
2000	392	347	n.a.	13*	20	28	38	0	89	9	1.072
2001	352	325	n.a.	2*	24	43	31	0	98	5	1.081
2002	351	316	n.a.	5*	45	38	12	0	95	5	1.079
2003	454	397	n.a.	9*	34	33	23	0	91	4	1.076
2004	420	358	6	6	52	31	5	0	88	3	1.086
2005	355	308	1	8	60	25	6	0	91	4	1.082
2006	376	335	1	6	67	22	4	0	93	4	1.085
2007	403	358	1	7	54	26	12	0	92	3	1.077
2008	342	278	2	13	69	13	3	0	85	5	1.084
2009	345	266	2	8	65	17	8	0	90	15	1.066
2010	349	270	3	17	72	7	1	0	80	4	1.070
2011	331	271	2	11	61	18	8	0	87	5	1.080
2012	391	318	1	4	54	24	17	1	95	16	1.078
2013	277	229	1	6	64	18	12	0	94	14	1.067
2014	261	210	2	10	60	9	7	0	76	18	1.073
2015	316	264	2	9	61	13	15	0	88	7	1.070
2016	277	203	3	10	68	9	9	0	86	15	1.073
2017	266	206	4	14	68	10	4	0	82	8	1.077
2018	268	211	3	13	69	7	8	0	84	7	1.082
2019	370	314	3	5	41	49	3	0	93	8	1.084
Average	350	295	2	9	55	23	11	0	89	8	1.077

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]).

³ n.a. = not available

*classification = <1 7/8 inches (C and B included in this classification).

Table 2. Yield, vine maturity, tuber characteristics, and internal tuber defects of 'Atlantic' potato variety grown at the UF/IFAS.

Tuber Characteristics							
Rating Code	Vine Maturity	Internal Flesh color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall 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. Florida rating codes for potato vine and tuber characteristics¹.

Year	Vine Maturity (vine kill)	Tuber Characteristics ¹						Internal Defects ²			
		IFC	SC	ST	TS	ED	APP	HH	BR	CRS	IHN
1998	n.a. ³	n.a.	7	5	2	5	6	n.a.	n.a.	n.a.	n.a.
1999	n.a.	n.a.	6	6	2	5	5	1	0	0	0
2000	n.a.	n.a.	7	6	4	6	5	2	0	0	1
2001	3	1	6	6	3	6	6	1	0	0	3
2002	3	1	6	5	2	7	6	8	0	1	5
2003	4	2	6	5	3	6	6	8	0	0	2
2004	6	2	6	5	3	6	6	4	0	0	4
2005	6	2	6	5	3	6	6	2	0	0	2
2006	6	2	6	5	3	6	6	1	0	0	1
2007	6	2	6	5	3	6	7	4	0	0	1
2008	6	2	6	5	3	6	5	1	0	0	5
2009	5	2	5	5	3	5	6	2	0	0	0
2010	6	2	6	5	4	5	6	6	0	0	1
2011	4	2	6	5	3	5	6	2	0	1	2
2012	6	2	6	5	3	5	6	5	0	0	2
2013	6	2	5	4	2	4	6	0	0	0	1
2014	2	2	6	5	3	6	7	1	0	0	5
2015	6	2	8	8	3	8	6	2	0	0	0
2016	7	2	6	6	2	7	7	2	0	0	0
2017	7	1	6	6	3	7	7	1	0	0	0
2018	7	2	7	7	2	7	7	1	0	0	0
2019	7	2	6	6	2	7	6	1	0	0	0
Average	5	2	6	5	3	6	6	3	0	0	2

¹ See rating system outlined in Florida Rating Code Table (Table 3).

² Percent tuber defects. HH = hollow heart, BR = brown rot, CRS = corky ring spot, IHN = internal heat necrosis. ³ n.a. = not available