

University of Florida Potato Variety Trials Spotlight: Snowden¹

Rodrick Z. Mwatuwa, Christian T. Christensen, and Lincoln Zotarelli²

General Comments

‘Snowden’ is a potato variety that is commonly grown for the potato chip market. It was selected from a cross of ‘Lelap’ and ‘Wischip’ by Dr. Stan Peloquin and Mr. Donald Kichefski at the University of Wisconsin. It was named and released in 1990 from the University of Wisconsin’s Lelap Starks Potato Breeding Farm in Rhinelander, WI. Tuber production and quality results provided in this spotlight are summarized from various variety trials conducted by the University of Florida’s Hastings Agricultural and Extension Center from 1998 to 2015.

General Characteristics

‘Snowden’ stems have an upright growth habit that gives this variety a competitive advantage over many weed species. Both stems and leaves have a slight pubescence. Tubers have light tan and slightly netted skin with a white flesh (Figure 1) according to Florida’s rating codes for potato tuber characteristics (Table 1). The tubers are uniform with a round to slightly flat shape. The eyes are of medium size and are uniformly distributed around the tuber. The variety has a medium tuber dormancy (e.g., time required for sprout emergence) with a high specific gravity adapted for Florida growing conditions (Tables 2 and 3). The variety has a high specific gravity of 1.075, making it suitable for the chip market. In most trials conducted in Florida, the variety demonstrated similar marketable yields and good tuber

characteristics as compared to its commercial standard ‘Atlantic’ (Table 2). On average, 87% of the tubers produced were from tuber size distribution classes A1 to A3.



Figure 1. Typical tuber and internal flesh color of ‘Snowden’ potato variety.

Credits: Lincoln Zotarelli, UF/IFAS

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Diseases

'Snowden' is susceptible to early blight (*Alternaria solani*), late blight (*Phytophthora infestans*), and common scab (*Streptomyces scabies*). In all trials, the variety showed slight susceptibility, of less than 1%, to internal heat necrosis, corky ring spot, and hollow heart (Table 3).

Season Length and Growth

'Snowden' performs as a mid-season maturity variety under Florida growing conditions. Season lengths range from 86 to 106 days from planting to harvesting, depending on growing conditions during the season. Late in the season, tuber size should be checked regularly in order to harvest tubers with marketable size.

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. (2016) and normally range between 45 to 100 lb/ac of P₂O₅ and 170 to 235 lb/ac of K₂O.

Planting

A seed piece of 2 1/2 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 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's rating codes for potato vine maturity at harvest and tuber characteristics.

Rating Code	Vine Maturity	Tuber Characteristics ¹					
		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 'Snowden' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL, from 1998 to 2015.

Year	Total Yield (cwt/A)	Marketable yield ¹ (cwt/A)	% Standard Atlantic	Size Class (Distribution by class %) ²					Range %			Specific Gravity
				C	B	A1	A2	A3	A4	A1 to A3	Culls	
1998	400	354	108	n.a. ³	11*	63	24	2	0	89	4	1.075
1999	391	356	101	n.a.	9*	76	15	0	0	91	4	1.064
2000	370	340	99	n.a.	9*	25	37	29	0	92	6	1.079
2001	407	378	108	n.a.	2*	32	41	24	1	97	5	1.079
2002	370	336	106	n.a.	6*	58	30	6	0	94	4	1.076
2003	472	417	105	n.a.	9*	47	35	9	0	92	4	1.079
2004	347	263	83	12	13	65	9	1	0	74	1	1.081
2005	243	169	59	2	27	67	4	0	0	71	3	1.076
2006	326	274	90	1	13	75	11	0	0	86	3	1.080
2007	370	330	103	1	9	74	13	3	0	91	2	1.075
2008	382	320	120	2	10	73	11	4	0	86	3	1.082
2009	280	224	99	1	11	73	12	3	0	88	10	1.069
2010	398	267	97	2	23	72	3	0	0	75	12	1.071
2011	325	259	91	2	13	71	11	3	0	84	7	1.076
2012	354	307	95	1	8	68	16	7	0	91	5	1.076
2013	276	231	95	2	9	71	11	7	0	89	10	1.069
2014	344	277	118	1	15	71	8	5	0	84	4	1.070
2015	356	296	117	2	11	76	7	4	0	86	5	1.068
Average	356	300	100	2	12	64	16	6	0	87	5	1.075

¹Marketable yield: Sum of size classes A1 to A3.
²Size classes: C = 0.5 to 1.5 inches, B = 1.5 to 1.86 inches, A1 = 1.86 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])
³n.a. = not available
* classification = <1 7/8 inches (C and B included in this classification)

Table 3. Yield, vine maturity, tuber characteristics, and internal tuber defects of 'Snowden' potato variety grown at the UF/IFAS Hastings Agricultural Extension Center, Hastings, FL from 1998 to 2015.

Year	Vine Maturity (vine kill)	Tuber Characteristics ¹					Internal Tuber Defects ¹				
		Internal Flesh color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	HH	BR	CRS	IHN
1998	n.a.	n.a. ²	7	5	2	4	7	n.a.	n.a.	n.a.	n.a.
1999	n.a.	n.a.	8	5	2	4	4	0	0	0	0
2000	n.a.	n.a.	6	5	4	4	4	1	0	0	0
2001	3	1	6	6	3	5	5	1	0	0	0
2002	3	1	6	5	2	6	6	1	0	3	2
2003	4	1	6	5	2	6	6	1	0	0	1
2004	3	2	6	5	2	5	6	0	0	0	0
2005	4	1	6	5	2	5	6	0	0	0	0
2006	5	1	6	5	2	5	6	0	0	0	0
2007	5	2	6	5	2	6	7	1	0	0	3
2008	6	2	6	5	2	6	6	0	0	0	1
2009	3	1	6	5	3	3	6	0	0	0	0
2010	6	2	6	5	3	4	6	2	0	0	1
2011	4	1	6	5	3	4	6	0	0	2	1
2012	4	2	6	5	3	3	6	1	0	3	3
2013	6	1	6	5	3	5	6	0	0	0	1
2014	2	1	6	5	3	10	6	0	0	0	0
2015	6	1	7	7	2	8	6	0	1	0	0
Average	4.3	1.3	6.3	5.2	2.5	5.1	5.9	0.4	0.1	0.5	0.7

¹See rating system outlined in Florida Rating Code Table (Table 1). Percent internal tuber defects. HH = hollow heart, BR = brown rot, CRS = corky ring spot, IHN = internal heat necrosis.
²n.a. = not available

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