

CHAPTER 8. SNACK FOOD ASSOCIATION POTATO VARIETY TRIAL, 2002

General Comments

A goal of the Snack Food Association trial is to identify a short-season processing potato variety with better production and quality characteristics than Atlantic, the current standard. Chip quality was determined by personnel at Wise Foods, Inc.

Planting Information

Planting Site	Hastings REC, Yelvington Farm, Hastings, FL
Planting Date	February 11, 2002
Harvest Date	May 28, 2002
Season Length	106 days
Fertilizer Program	preplant, 80-11-68 lb/A; sidedress (twice), 60-8-51 lb/A
Irrigation Program	seepage

Experimental Design

Number of Varieties	2 (Standard: Atlantic and Snowden)
Number of Clones	10
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (102 cm)
Replications	1
Plot Size	Single 250 ft row (76.2 m) planted for each variety. Four, 20 ft (6.1 m) plots harvested from each row to determine production and quality statistics.

Production Statistics

Early Vigor Ratings	43 days after planting
Highest Total Yield	B0766-3 (379 cwt/acre or 42.4 MT/ha)
Highest Marketable Yield	Snowden and B0766-3 (332 cwt/acre or 37.2 MT/ha)
Highest Gravity	Atlantic and Snowden (1.076)

Specific Comments

Atlantic (SFA). Atlantic total and marketable tuber yields were 369 and 332 cwt/acre, respectively. Potato tuber skin color was tan with a netted texture. Tuber flesh color was cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as good. Early plant vigor (size) was rated as 8 to 10 inches. Vine type at full flower was rated as spreading to upright with a fair canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for Atlantic tubers was 1.076. Chip quality was rated as very good with minimal blemishes.

Snowden (SFA). Snowden total and marketable tuber yields were 343 and 319 cwt/acre, respectively. Potato tuber skin color was tan with a netted texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as good. Early plant vigor (size) was rated as plants greater than 12 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for Snowden tubers was 1.076. Chip quality was rated as very good with minimal blemishes.

A91790-13 (SFA). A91790-13 total and marketable tuber yields were 271 and 232 cwt/acre, respectively. Potato tuber skin color was buff to white with a slightly netted to moderately smooth texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 10 to 12 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for A91790-13 tubers was 1.073. Chip quality was rated as marginally acceptable with borderline defects and/or color.

AF1424-7 (SFA). AF1424-7 total and marketable tuber yields were 345 and 326 cwt/acre, respectively. Potato tuber skin color was buff to white with a moderately smooth texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of shallow to very shallow. Overall external tuber appearance was noted as good. Early plant vigor (size) was rated as 8 to 10 inches. Vine type at full flower was rated as upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for AF1424-7 tubers was 1.074. Chip quality was rated as good with minimal blemishes and/or color variations.

AF1775-2 (SFA). AF1775-2 total and marketable tuber yields were 295 and 266 cwt/acre, respectively. Potato tuber skin color was white with a moderately smooth texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 4 to 6 inches. Vine type at full flower was rated as upright with a fair canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for AF1775-2 tubers was 1.070. Chip quality was rated as very good with minimal blemishes.

B0766-3 (SFA). B0766-3 total and marketable tuber yields were 379 and 332 cwt/acre, respectively. Potato tuber skin color was buff to white with a slightly netted to moderately smooth texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly round’ to ‘round to oblong’ with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as poor to fair. Early plant vigor (size) was rated as 10 to 12 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for B0766-3 tubers was 1.073. Chip quality was rated as very good with minimal blemishes.

MSF099-3 (SFA). MSF099-3 total and marketable tuber yields were 280 and 246 cwt/acre, respectively. Potato tuber skin color was buff with a netted to slightly netted texture. Tuber flesh color was white to cream. Tuber shape was rated as ‘mostly oblong’ to ‘oblong’ with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair. Early plant vigor (size) was rated as 10 to 12 inches. Vine type at full flower was rated as upright with a fair to good canopy. Plant maturity at harvest was rated as completely

dead. Average specific gravity for MSF099-3 tubers was 1.072. Chip quality was rated as very good with minimal blemishes.

MSG227-2 (SFA). MSG227-2 total and marketable tuber yields were 185 and 153 cwt/acre, respectively. Potato tuber skin color was brown to tan with a netted texture. Tuber flesh color was white to cream. Tuber shape was rated as 'round to oblong' with an eye depth of shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 6 to 8 inches. Vine type at full flower was rated as upright with a poor to fair canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for MSG227-2 tubers was 1.071. Chip quality was rated as very good with minimal blemishes.

NDTX4930-5W (SFA). NDTX4930-5W total and marketable tuber yields were 329 and 270 cwt/acre, respectively. Potato tuber skin color was white with a moderately smooth texture. Tuber flesh color was white. Tuber shape was rated as 'round to oblong' with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 8 to 10 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for NDTX4930-5W tubers was 1.065. Chip quality was rated as very good with minimal blemishes.

NY120 (SFA). NY120 total and marketable tuber yields were 217 and 189 cwt/acre, respectively. Potato tuber skin color was buff to white with a slightly netted texture. Tuber flesh color was white to cream. Tuber shape was rated as 'mostly round' to 'round to oblong' with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 10 to 12 inches. Vine type at full flower was rated as spreading to upright with a poor canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for NY120 tubers was 1.073. Chip quality was rated as very good with minimal blemishes.

W1355-1 (SFA). W1355-1 total and marketable tuber yields were 109 and 78 cwt/acre, respectively. Potato tuber skin color was tan with a netted texture. Tuber flesh color was white. Tuber shape was rated as 'round' to 'mostly round' with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 6 to 8 inches. Vine type at full flower was rated as upright with a fair canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for W1355-1 tubers was 1.073. Chip quality was rated as very good with minimal blemishes.

W1431 (SFA). W1431 total and marketable tuber yields were 313 and 276 cwt/acre, respectively. Potato tuber skin color was buff to white with a slightly netted to moderately smooth texture. Tuber flesh color was white. Tuber shape was rated as 'mostly round' to 'round to oblong' with an eye depth of intermediate to shallow. Overall external tuber appearance was noted as fair. Early plant vigor (size) was rated as 10 to 12 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as completely dead. Average specific gravity for W1431 tubers was 1.074. Chip quality was rated as good with minimal blemishes and/or color variations.

Table 21. Production statistics for Snack Food Association Chipping potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield ¹		Size Distribution by Class (%) ²					Size Distribution (%)		Specific Gravity
		(cwt/A)	% of standard	1	2	3	4	5	2 to 4	3 to 4	
Atlantic	262	228	100	3	37	56	4	0	97	60	1.076
Snowden	369	332	146	9	70	20	1	0	91	22	1.076
A91790-13	271	232	102	11	55	31	3	0	89	34	1.073
AF1424-7	345	326	143	4	51	45	0	0	96	45	1.074
AF1775-2	295	266	117	3	45	50	2	0	97	52	1.070
B0766-3	379	332	146	5	42	47	6	0	95	53	1.073
MSF099-3	280	246	108	10	85	5	0	0	90	5	1.072
MSG227-2	185	153	67	13	78	9	0	0	87	9	1.071
NDTX4930-5W	329	270	118	7	52	39	2	0	93	41	1.065
NY120	217	189	83	8	60	32	1	0	92	33	1.073
W1355-1	109	78	34	26	73	1	0	0	74	1	1.073
W1431	313	276	121	4	55	40	0	0	96	41	1.074
Average	280	244									1.072

¹ - Marketable Yield: size classes 2 to 4

² - Size classes: 1 = <1 7/8", 2 = 1 7/8 to 2.5", 3 = 2.5 to 3.25", 4 = 3.25 to 4", 5 = >4"

Table 22. Plant growth and tuber characteristics of Snack Food Association Chipping potato selections.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ¹						
	Avg Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Chip Rating ²
Atlantic	19	6.5	8-5	1	2.0	6.0	5.0	2.5	6.5	7.0	2
Snowden	23	8.5	9-6	1	1.5	6.0	5.0	2.5	6.0	7.0	2
A91790-13	20	7.5	9-6	1	1.5	7.5	6.5	2.5	7.0	6.0	4
AF1424-7	22	7.0	9	1	1.5	7.5	7.0	2.5	7.5	7.0	3
AF1775-2	19	5.3	8	1	1.5	8.0	7.0	2.5	6.5	6.5	2
B0766-3	22	8.0	9-6	1	1.5	7.5	6.5	2.5	6.5	4.5	2
MSF099-3	22	7.8	8-9	1	1.5	7.0	5.5	4.5	6.5	5.0	2
MSG227-2	21	5.5	7-8	1	1.5	5.5	5.0	3.0	7.0	5.5	2
NDTX4930-5W	23	6.8	6-9	1	1.0	8.0	7.0	3.0	6.5	5.5	2
NY120	19	7.5	7-4	1	1.5	7.5	6.0	2.5	5.5	6.5	2
W1355-1	24	6.0	8	1	1.0	6.0	5.0	1.5	6.5	6.0	2
W1431	23	7.8	6-9	1	1.0	7.5	6.5	2.5	6.5	5.0	3

¹See rating system outlined in Tables 1 and 2.

²For descriptions, see general potato variety production information.

Table 23. External and internal defects of Snack Food Association Chipping potato selections.

Clone	External Tuber Defects (cwt/A)					% Internals Tuber Defects ²			
	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ¹	HH	BR	CRS	IHN
Atlantic	2	3	20	2	27	0	0	0	6
Snowden	0	0	5	1	6	0	0	10	0
A91790-13	0	0	7	2	9	0	0	1	3
AF1424-7	0	1	3	2	6	0	0	1	0
AF1775-2	0	1	19	0	20	0	0	3	9
B0766-3	11	2	10	7	30	0	0	4	0
MSF099-3	0	2	3	2	7	0	0	6	8
MSG227-2	2	0	3	5	10	0	0	0	0
NDTX4930-5W	0	1	12	26	39	1	0	0	1
NY120	0	0	9	4	13	0	0	5	0
W1355-1	0	0	5	0	5	0	0	3	1
W1431	0	2	5	17	24	0	0	0	0

¹Total culls include the sum of growth cracks, mishapen, sunburned and rotten/misc.

²Percent tubers: HH, hollow heart; BR, brown rot; CRS, corky ringspot; IHN, internal heat necrosis.