

CHAPTER 10. SPECIALTY POTATO VARIETY TRIAL, 2002

General Comments

A goal of the specialty potato variety trial is to identify potato selections that expand the marketable varieties produced in Florida. Established varieties were included to provide a baseline for comparison of production quality values. The clone main effect data, an average over all test sites, is presented.

Planting Information

Planting Sites	Hastings REC, Yelvington Farm, Hastings, FL (UF) Flagler County Grower Site, Bunnell, FL (FC) St. Johns County Grower Site 1, Hastings, FL (STJ-1)
Planting Dates	UF Farm (1/30/02), STJ-1 (1/24/02), FC (1/25/02)
Harvest Dates	UF (5/21/02), STJ-1 (5/8/02), FC (5/14/02)
Season Length	UF (100), STJ-1 (104), STJ-2 (105), FC (109)
Fertilizer Program	IFAS program: 200 lb N/acre, P (soil test), K (soil test).
Irrigation Program	seepage

Experimental Design (3 sites x 16 clone factorial design)

Number of Sites	3
Number of Selections	16
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (102 cm)
Replications	4 at each site
Plot Size	16 ft (4.9 m) single row

Production Statistics

Early Vigor Ratings	UF Farm (44), STJ-1 (42), Flagler (44 days after planting)
Highest Total Yield	Red LaSoda (430 cwt/acre or 48.2 MT/ha)
Highest Marketable Yield	Red LaSoda (392 cwt/acre or 43.9 MT/ha)
Best Overall Appearance	Carola, B0811-4, S48-6 (7.1, good to excellent)

LaChipper (MFX). LaChipper total and marketable tuber yields were 245 and 216 cwt/acre, respectively. Potato tuber skin color was white with a moderately smooth to 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 6 to 8 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for LaChipper tubers was 1.066.

Red LaSoda (MFX). Red LaSoda total and marketable tuber yields were 430 and 392 cwt/acre, respectively. Potato tuber skin color was pink to red with a moderately smooth to 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 deep to intermediate. 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Red LaSoda tubers was 1.058.

Austrian Crescent (Cornell). Austrian Crescent total and marketable tuber yields were 199 and 180 cwt/acre, respectively. Potato tuber skin color was tan to buff with a slightly netted to moderately smooth texture. Tuber flesh color was light to medium yellow. Tuber shape was rated as ‘oblong’ to ‘oblong to long’. Average tuber length was 4 to 6 inches with a diameter of 1.5 to 2.5 inches. Tubers were curved with tapered ends. Eye depth was rated as 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Austrian Crescent tubers was 1.069.

Banana (Cornell). Banana total and marketable tuber yields were 195 and 182 cwt/acre, respectively. Potato tuber skin color was tan to buff with a slightly netted to moderately smooth texture. Tuber flesh color was cream to light yellow. Tuber shape was rated as ‘oblong’ to ‘oblong to long’. Average tuber length was 3 to 5 inches with a diameter of 1 to 2 inches. Tubers were curved with tapered ends. Eye depth was rated as 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Banana tubers was 1.075.

Carola (Cornell). Carola total and marketable tuber yields were 328 and 236 cwt/acre, respectively. Potato tuber skin color was buff to white with a slightly netted to moderately smooth texture. Tuber flesh color was light to medium yellow. Tuber shape was rated as ‘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 6 to 8 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Carola tubers was 1.063.

French Fingerling (Cornell). French Fingerling total and marketable tuber yields were 248 and 244 cwt/acre, respectively. Potato tuber skin color was difficult to classify but considered a pinkish-salmon. Skin texture was rated as ‘moderately smooth’ to ‘smooth’. Tuber flesh color was light to medium yellow. Tuber shape was rated as ‘oblong’ to ‘oblong to long’. Average tuber length was 4 to 6 inches with a diameter of 2 to 3 inches. Tubers were tapered at the ends. Eye depth was rated as 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for French Fingerling tubers was 1.067.

German Butterball (Cornell). German Butterball total and marketable tuber yields were 273 and 179 cwt/acre, respectively. Potato tuber skin color was tan with a slightly netted texture. Tuber flesh color was light to medium yellow. Tuber shape was rated as ‘round to oblong’ with an eye depth of shallow to very 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 spreading to upright with a good canopy. Plant maturity at

harvest was rated as yellow and dying to completely dead. Average specific gravity for German Butterball tubers was 1.069.

Laratte (Cornell). Laratte total and marketable tuber yields were 191 and 185 cwt/acre, respectively. Potato tuber skin color was tan to buff with a slightly netted to moderately smooth texture. Tuber flesh color was cream to light yellow. Tuber shape was rated as 'oblong' to 'oblong to long'. Average tuber length was 3.5 to 4 inches with a diameter of 1.5 to 2 inches. Tubers were tapered at the ends. Eye depth was rated as 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Laratte tubers was 1.074.

Ozette (Cornell). Ozette total and marketable tuber yields were 139 and 132 cwt/acre, respectively. Potato tuber skin color was tan to buff with a slightly netted to moderately smooth texture. Tuber flesh color was cream to light yellow. Tuber shape was rated as 'oblong' to 'oblong to long'. Average tuber length was 1.5 to 2 inches with a diameter of 1.5 to 2 inches. Tubers were barrel shaped. Eye depth was rated as deep to intermediate. Overall external tuber appearance was noted as fair to good. Early plant vigor (size) was rated as 2 to 4 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as starting to mature to moderately mature. Average specific gravity for Ozette tubers was 1.070.

Peanut (Cornell). Peanut total and marketable tuber yields were 174 and 170 cwt/acre, respectively. Potato tuber skin color was brown to tan with a netted to slightly netted texture. Tuber flesh color was light to medium yellow. Tuber shape was rated as 'mostly oblong' to 'oblong'. Average tuber length was 2.5 to 3 inches with a diameter of 1 to 1.5 inches. Tubers were pear shaped. Eye depth was rated as intermediate to shallow. Overall external tuber appearance was noted as poor to fair. Early plant vigor (size) was rated as 4 to 6 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for Peanut tubers was 1.075.

Purple Peruvian (Cornell). Purple Peruvian total and marketable tuber yields were 188 and 185 cwt/acre, respectively. Potato tuber skin color was dark purple with a slightly netted to moderately smooth texture. Tuber flesh color was dark blue to purple. Tuber shape was rated as 'oblong' to 'oblong to long'. Average tuber length was 2.5 to 3 inches with a diameter of 0.75 to 1.25 inches. Tubers were barrel shaped. Eye depth was rated as deep. 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 spreading to upright with a good canopy. Plant maturity at harvest was rated as starting to mature to moderately mature. Average specific gravity for Purple Peruvian tubers was 1.082.

Rose Finn Apple (Cornell). Rose Finn Apple total and marketable tuber yields were 151 and 93 cwt/acre, respectively. Potato tuber skin color was tan to buff with a slightly netted to moderately smooth texture. Tuber flesh color was light to medium yellow. Tuber shape was rated as 'oblong' to 'oblong to long'. Average tuber length was 2.5 to 4 inches with a diameter of 0.75 to 1.25 inches. Tubers were crescent shaped with blunt ends. Eye depth was rated as intermediate to deep. Overall external tuber appearance was noted as poor to fair. Early plant vigor (size) was rated as leaves in a rosette. Vine type at full flower was rated as upright with a fair to good canopy. Plant maturity at harvest was rated as moderately mature to yellow and dying. Average specific gravity for Rose Finn Apple tubers was 1.070.

B0811-4 (USDA). B0811-4 total and marketable tuber yields were 244 and 207 cwt/acre, respectively. Potato tuber skin color was pink to red with a moderately smooth to smooth texture. Tuber flesh color was medium yellow. 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 to excellent. 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 yellow and dying to completely dead. Average specific gravity for B0811-4 tubers was 1.086.

NYT17-2 (Cornell). NYT17-2 total and marketable tuber yields were 215 and 120 cwt/acre, respectively. Potato tuber skin color was dark pink to red with a slightly netted to moderately smooth texture. Tuber flesh

color was pink to red. Tuber shape was rated as '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 fair canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for NYT17-2 tubers was 1.066.

S45-5 (Cornell). S45-5 total and marketable tuber yields were 255 and 191 cwt/acre, respectively. Potato tuber skin color was purple with a slightly netted to moderately smooth texture. Tuber flesh color was purple. Tuber shape was rated as 'round to oblong' to 'mostly 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 6 to 8 inches. Vine type at full flower was rated as decumbent to spreading with a fair canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for S45-5 tubers was 1.061.

S48-6 (Cornell). S48-6 total and marketable tuber yields were 319 and 273 cwt/acre, respectively. Potato tuber skin color was dark pink to red with a slightly netted to moderately smooth texture. Tuber flesh color was pink to red. Tuber shape was rated as 'mostly oblong' 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 6 to 8 inches. Vine type at full flower was rated as spreading to upright with a good canopy. Plant maturity at harvest was rated as yellow and dying to completely dead. Average specific gravity for S48-6 tubers was 1.058.

Table 27. Average production statistics and internal defects for Specialty potato selections for three sites

Clone Main Effects	Total Yield (cwt/A)	Marketable Yield (cwt/A)	% Internal Tuber Defects ³				Specific Gravity
			HH	BR	CRS	IHN	
LaChipper	345	316 ¹	1	0	4	2	1.066
Red Lasoda	430	392 ¹	0	0	5	0	1.058
Austrian Crescent	199	180 ²	0	0	0	1	1.069
Banana	195	182 ²	0	0	0	1	1.075
Carola	328	236 ¹	0	0	3	7	1.063
French Fingerling	248	244 ²	0	0	1	8	1.067
German Butterball	273	179 ¹	0	0	2	26	1.069
Laratte	191	185 ²	0	0	0	1	1.074
Ozette	139	132 ²	0	0	0	2	1.07
Peanut	174	170 ²	0	0	1	2	1.075
Purple Peruvian	188	185 ²	0	0	0	0	1.082
Rose Finn Apple	151	93 ²	0	0	0	1	1.070
B0811-4	244	207 ¹	0	0	3	0	1.086
NYT17-2	215	120 ¹	0	0	0	0	1.066
S45-5	245	191 ¹	0	0	0	0	1.061
S48-6	319	273 ¹	0	0	1	0	1.058
<i>LSD</i> ⁴	37	36	<i>ns</i>	<i>ns</i>	**	3.9	0.003
<i>P Value</i>	0.0001	0.0001	0.6616	0.4590	0.0057	0.0001	0.0001

¹Marketable Yield: sizes 1 7/8 to 4"; ²Marketable Yield: all potatoes that were not culls.

³Percent tubers: HH, hollow heart; BR, brown rot; CRS, corky ringspot; IHN, internal heat necrosis.

⁴Means separated within columns by the *LSD* means separation test.

Table 28. Plant growth and tuber characteristics of Specialty potato selections averaged over the UF, Flagler County and St. Johns County farm sites.

Clone	Plant Growth Characteristics ¹				Tuber Characteristics ¹					
	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP
LaChipper	98	6.4	9-6	2.2	1.1	8.0	7.9	2.2	6.6	6.9
Red Lasoda	98	6.1	6-9	2.3	1.6	2.7	7.5	2.7	4.7	6.9
Austrian Crescent	97	5.9	9-6	1.8	3.3	6.8	6.8	5.1	5.9	6.2
Banana	99	6.2	6-9	2.0	2.4	6.7	6.8	5.1	5.2	5.6
Carola	92	6.2	6-9	1.3	3.4	7.2	6.9	3.0	7.4	7.1
French Fingerling	96	5.9	9-6	2.2	3.1	3.6	7.3	5.6	6.6	6.7
German Butterball	98	6.2	9-6	2.7	3.2	6.0	5.4	3.5	6.7	5.9
Laratte	98	6.1	6-9	1.8	2.6	6.6	6.3	5.6	6.2	5.5
Ozette	70	4.0	9-6	6.0	1.6	6.6	6.3	4.8	3.3	5.1
Peanut	94	5.1	6-9	1.4	3.4	5.9	5.8	4.2	5.7	4.9
Purple Peruvian	83	4.8	9-6	5.3	8.9	1.0	6.4	5.3	3.0	5.5
Rose Finn Apple	36	2.4	7-8	4.4	3.3	6.1	6.9	5.9	4.7	4.2
B0811-4	99	5.8	7-8	2.4	4.0	2.4	7.4	2.1	6.1	7.1
NYT17-2	97	6.5	5-8	1.3	6.2	2.8	6.5	5.0	6.1	5.8
S45-5	97	5.7	5-2	1.5	9.0	1.0	6.2	3.9	5.1	5.8
S48-6	94	6.3	9-6	1.9	6.2	2.7	6.8	4.4	6.3	7.1

¹See rating system outlined in Tables 1 and 2.