

CHAPTER 11. NITROGEN EFFICIENT POTATO VARIETY TRIAL, 2002

General Comments

A goal of the nitrogen efficient potato variety trial was to identify potato varieties that produce acceptable yields at nitrogen rates lower than IFAS recommendations. Variety and nitrogen main effect data is presented. All varieties except LaChipper and Eva were provided by HZPC Americas Corp. No 'variety by rate' variables were significant.

Planting Information

Planting Site	Hastings REC, Yelvington Farm, Hastings, FL
Planting Date	February 6, 2002
Harvest Date	May 21, 2002
Season Length	108 days
Fertilizer Program	IFAS: 200 lb N/acre, P (36 lb P ₂ O ₅ /acre), K (50 lb K ₂ O/acre).
Irrigation Program	seepage

Experimental Design (7 variety x 4 nitrogen rate factorial design)

Number of Sites	1
Number on N Rates	4 (0, 66, 134, 200 lb N/acre)
Number of Varieties	7 (LaChipper, Eva, Mondial, Vivaldi, Fabula, Caesar, Platina)
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (102 cm)
Replications	4
Plot Size	12 ft (3.7 m) x four rows. Center 2 rows harvested in each plot.

Production Statistics

Early Vigor Ratings	48 days after planting
Highest Total Yield	Fabula (278 cwt/acre or 31.1 MT/ha)
Highest Marketable Yield	Fabula (255cwt/acre or 28.6 MT/ha)
Best Overall Appearance	LaChipper (6.4, fair to good)
Specific Comments	See White-Skinned Fresh Market Potato Variety Report

Table 29. Main effect (variety x nitrogen rate) production statistics for potato selections.

Variety Main Effect	Total	Marketable	Size					Size Class		Specific Gravity
	Yield	Yield ¹	Distribution by Class (%) ²					Range (%)		
	(cwt/A)	(cwt/A)	1	2	3	4	5	2 to 4	3 to 4	
LaChipper	243	219	9	72	18	0	0	91	18	1.068
Eva	220	180	13	79	8	0	0	87	8	1.064
Mondial	240	193	15	76	9	0	0	85	9	1.059
Vivaldi	243	169	31	68	2	0	0	69	2	1.063
Fabula	278	255	5	72	21	2	0	95	23	1.061
Caesar	237	190	17	78	5	0	0	83	5	1.065
Platina	277	240	11	78	10	1	0	89	11	1.060
LSD ³	19	20	3	4	4	1	ns	3	4	0.002
<i>P Value</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>	-	<i>0.0001</i>	<i>0.0001</i>	<i>0.0001</i>

Nitrogen Rate Main Effect	Total	Marketable	Size					Size Class		Specific Gravity
	Yield	Yield ¹	Distribution by Class (%) ²					Range (%)		
	(cwt/A)	(cwt/A)	1	2	3	4	5	2 to 4	3 to 4	
0	218	177	16	76	8	0	0	85	8	1.062
66	259	215	15	76	9	0	0	86	10	1.062
134	264	221	15	73	11	1	0	85	12	1.063
200	252	214	14	74	12	1	0	87	13	1.063
LSD ³	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>
<i>P Value</i>	<i>0.3354</i>	<i>0.4222</i>	<i>0.8721</i>	<i>0.4935</i>	<i>0.5393</i>	<i>0.3989</i>	-	<i>0.8721</i>	<i>0.5294</i>	<i>0.8135</i>

¹Marketable Yield: size classes 2 to 4

²Size 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"

³Means separated within columns by the LSD mean separation test.

Table 30. Main effect (variety x nitrogen rate) quality statistics for potato selections.

Variety	Plant Growth Characteristics ¹				External Tuber Defects (cwt/A)					APP ¹
	% Stand	Early Vigor	Vine Type	Vine Maturity	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ²	
LaChipper	100	7	9-6	2	0	1	1	1	3	6.4
Eva	94	6	8	2	0	1	6	7	13	5.8
Mondial	96	6	8	4	2	9	1	1	13	4.3
Vivaldi	98	7	8-9	2	0	0	2	4	6	5.8
Fabula	95	7	8	3	1	0	1	6	9	5.0
Caesar	97	7	8	4	0	2	0	7	9	4.9
Platina	96	7	8	3	1	2	2	6	10	4.9
<i>LSD</i> ³					1	1	2	5	5	
<i>P Value</i>					0.0017	0.0001	0.0001	0.0235	0.0012	

Nitrogen Rate	Plant Growth Characteristics ¹				External Tuber Defects (cwt/A)					APP ¹
	% Stand	Early Vigor	Vine Type	Vine Maturity	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls ²	
0	98	6.5	-	2.6	0	1	1	9	11	5.8
66	96	6.8	-	2.7	1	2	2	5	9	5.8
134	97	6.4	-	3.0	0	3	2	3	9	4.9
200	96	6.5	-	3.0	0	3	2	2	7	4.7
<i>LSD</i> ³					ns	1	ns	ns	ns	
<i>P Value</i>					0.8663	0.0081	0.1080	0.3968	0.8728	

¹See rating system outlined in Tables 1 and 2.

²Total culls include the sum of growth cracks, mishapen, sunburned and rotten/misc.

