

Fall Pepper Variety Evaluation



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Table 1. Summary of cultural practices used for variety trial of pepper grown with seepage irrigation in Fort Pierce, FL during fall 2015.

Experimental design	RCBD (4 replications)
Plot size	26 plants (13 plants/row)
Harvest unit	26 plants (13 plants/row)
Total area	216.75 ft x 4 reps = 867 ft = 0.12 acres
Plastic mulch	White/Black (Top/Bottom)
Fumigation	Telone/Chloropicrin (40:60) at 200 lb/acre
Planting date	21 Sept. 2015
Linear ft per acre	8,712
Bed spacing (center to center)	5 ft
Bed height	9 inches
Bed width	32 inches
Plant population	23,232 plants/acre
Distance between plants	9 inches
No. of rows	2
Distance between rows	18 inches
Row run	South- North
Harvest date	10 Dec. 2015
Planting to harvest	80 days
Prevalent field disease	Bacterial soft rot (<i>Erwinia carotovora</i> ssp. <i>carotovora</i>)

Table 2. Sources of pepper seeds and bacterial leaf spot (BLS) resistance

Variety	Company	BLS (Xcv) resistance
Abay	Enza Zaden	1,2,3,4,5
Antebellum	Seminis	1,2,3,4,5,6,7,8,9,10 TMV 0, TSW
Aristotle	Seminis	1,2,3
Bastille	Syngenta	1,2,3,4,5,7,8,9 TMV, TSW
Bayonet	Syngenta	1,2,3,4,5,7,8,9, TMV, TSW
Blitz	Sakata	1,2,3,4,5,7,8,9, TMV, TEV
Dashen	Enza Zaden	1,2,3,4,5, TSW
EZ1	Enza Zaden	1,2,3,4,5, IR: Pc, TSW
Gridiron	Sakata	1,2,3,4,5,7,8,9, TMV:0, IR:TEV
Rampart	Syngenta	1,2,3,4,5,7,8,9
Seedway 48	Seedway	1,2,3,4,5,6,7,8,9,10
SPP1718	Sakata	-
SW001	Seedway	1,2,3,4,5,6,7,8,9,10, TSWV
Touchdown	Sakata	1,2,3,4,5,7,8,9, TMV
0972	Seminis	1,2,3,4,5,6,7,8,9,10 TMV 0, TSW
3255	Seminis	1,2,3,4,5,6,7,8,9,10 TMV 0
9325	Seminis	1,2,3,4,5,6,7,8,9,10 TMV 0

Xcv 1,2,3,4,5,6,7,8,9,10 - BLS (*Xanthomonas campestris* pv. *Vesicatoria*); TMV - Tobacco mosaic virus; TSW - Tomato spotted wilt; TEV – Tobacco etch virus; Pc = Phytophthora capsici.

Table 3. Summary of mean, minimum (Min.) and maximum (Max.) temperature and total rainfall in Fort Pierce, FL during fall/winter 2015-16.^z

Period	Temperature (°F)			Total rainfall (inch)
	Average	Min	Max	
October	77.6	65.0	91.0	3.62
November	76.8	57.0	86.0	4.84
December	73.8	53.0	84.0	5.49
January	62.6	35.0	84.0	11.56
Average/Total	72.7	52.5	86.3	25.51

^zWeather data obtained from National Oceanic and Atmospheric Agency (NOAA), National Weather Service Weather Station in Fort Pierce, Florida.

Table 4. First harvest marketable and unmarketable yield categories for selected pepper varieties grown in Fort Pierce, FL during fall 2015.

Variety	Super- Jumbo	Jumbo	X- Large	Large	Medium	Small	Unmarketable	Total marketable
	-----Yield (28-lb bu/acre)-----							
Abay	0	339	205	207	104a ^z	0	10	856bcd
Antebellum	0	467	287	189	41bcd	0	98	985abcd
Aristotle	0	556	331	98	26cd	0	59	1,011abc
Bastille	0	327	215	40	40bcd	0	32	622e
Bayonet	0	403	253	98	40bcd	8	37	801cde
Blitz	0	497	329	132	58abcd	0	202	1,015abc
Dashen	0	343	399	185	25cd	0	26	952abcd
EZ1	0	367	259	120	20cd	0	64	766de
Gridiron	0	644	84	257	0d	2	22	988abcd
Rampart	66	441	104	176	8d	0	53	794cde
Seedway 48	0	590	273	102	74abcd	0	45	1,039ab
SPP 1718	0	594	215	140	58abcd	0	49	1,007abc
SW001	0	668	223	193	20cd	0	70	1,105a
Touchdown	0	351	341	191	90ab	0	38	973abcd
0972	0	572	229	152	54abcd	0	50	1,007abc
3255	48	503	371	201	0d	2	46	1,125a
9325	0	519	359	132	46abcd	0	50	1,055ab
<i>P</i> value	0.81	0.18	0.51	0.10	0.004	0.41	0.20	0.002
Significance	NS	NS	NS	NS	**	NS	NS	**

^zWithin columns, means followed by different letters are significantly different according to Duncan's Multiple Range Test at 5%.

NS, *, **, *** Nonsignificant or significant at $P \leq 0.05$, 0.01, or 0.001, respectively.

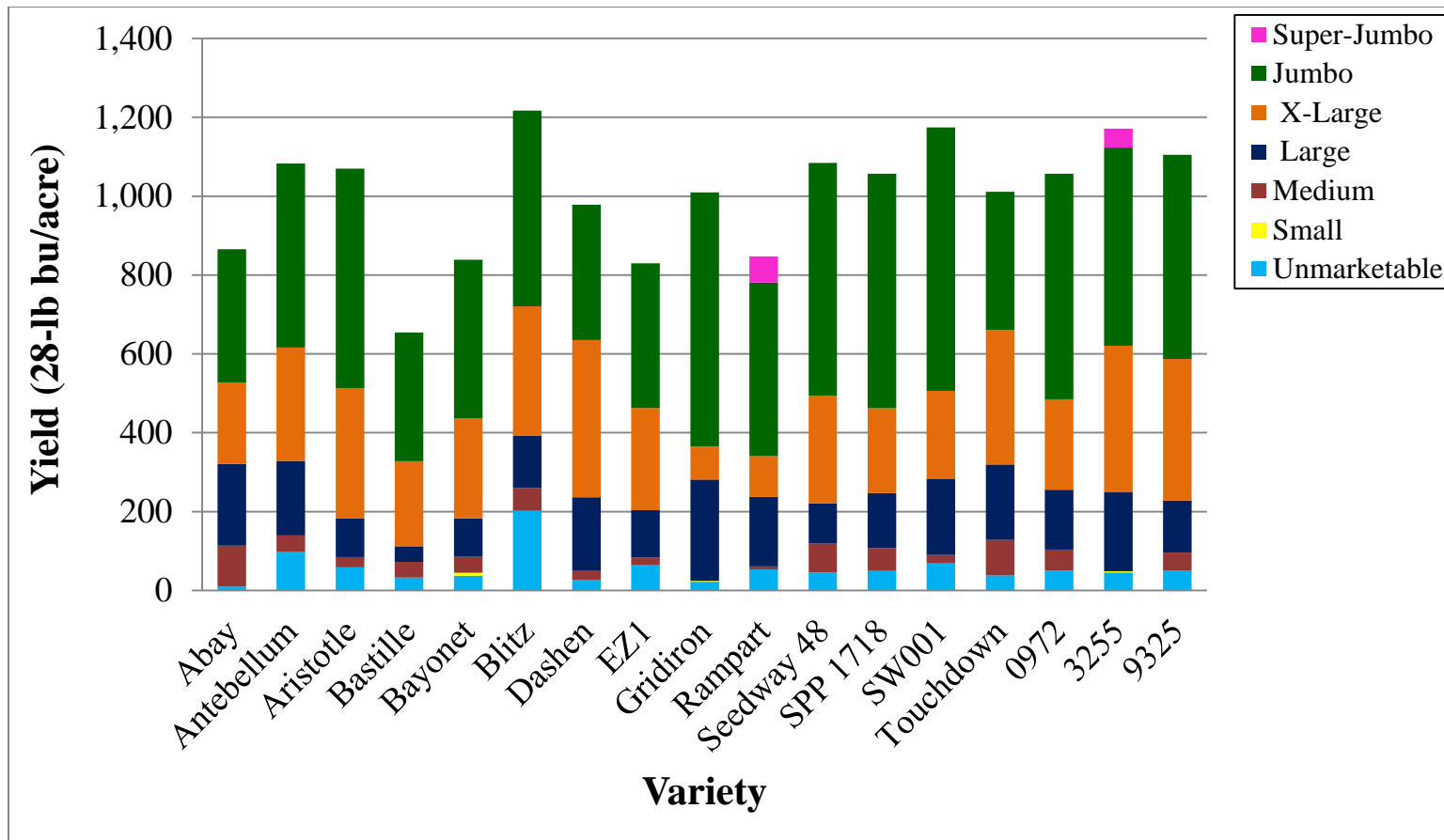


Fig. 1. First harvest marketable and unmarketable yield categories for selected pepper varieties grown in Fort Pierce, FL during fall 2015.

Table 5. Quality categories for selected peppers varieties grown in Fort Pierce, FL during fall 2015.

Variety	Lobes	Length	Width	Ratio	Thickness
	(number)	------(inches)-----			
Abay	3.67abcd ^z	3.49bc	3.55	0.98abcd	0.24abc
Antebellum	3.75abc	3.67ab	3.58	1.02abc	0.24abc
Aristotle	3.17d	3.53bc	3.50	1.01abc	0.22c
Bastille	3.17d	3.29dc	3.73	0.88de	0.23c
Bayonet	3.58abcd	3.59abc	3.61	0.99abcd	0.28a
Blitz	3.33cd	3.40bcd	3.69	0.92bcde	0.25abc
Dashen	3.67abcd	3.51bc	3.58	0.98abcd	0.23c
EZ1	3.33cd	3.65ab	3.71	0.98abcd	0.28a
Gridiron	3.33cd	3.44bc	3.55	0.97abcd	0.23c
Rampart	3.92ab	3.43bc	3.66	0.93bcde	0.22c
Seedway 48	3.42bcd	3.85a	3.58	1.08a	0.23c
SPP1718	3.33cd	3.49bc	3.65	0.96bcde	0.27ab
SW001	3.75abc	3.55bc	3.51	1.01ab	0.27ab
Touchdown	3.50abcd	3.30cd	3.55	0.93bcde	0.27ab
0972	3.83abc	3.40bcd	3.80	0.90cde	0.22c
3255	4.00a	3.29dc	3.52	0.93bcde	0.24bc
9325	3.75abc	3.11d	3.63	0.86e	0.25abc
<i>P</i> value	0.005	0.0001	0.33	0.0007	0.0001
Significance	**	***	NS	***	***

^zWithin columns, means followed by different letters are significantly different according to Duncan's Multiple Range Test at 5%.

NS, *, **, *** Nonsignificant or significant at $P \leq 0.05$, 0.01, or 0.001, respectively.

Table 6. Cracking and bruising evaluation for selected peppers varieties grown in Fort Pierce, FL during fall 2015.

Variety	Cracking			Bruising					
				(1 day after harvest)			(5 days after harvest)		
	Height (inches)								
	12	24	36	12	24	36	12	24	36
(Rating 1-5) ^z									
Abay	1.00 ^y	2.67	4.00	1.67	2.67	3.70cd	1.67d ^z	3.33	4.67
Antebellum	2.33	4.33	5.00	2.33	4.00	5.00a	3.00abc	4.67	5.00
Aristotle	1.00	4.33	4.33	2.00	2.67	4.70ab	3.00abc	3.67	4.67
Bastille	1.67	3.33	5.00	2.00	4.00	4.70ab	3.00abc	4.67	5.00
Bayonet	1.00	3.67	4.33	1.67	2.67	3.30d	2.00cd	3.33	4.33
Blitz	1.67	3.00	4.33	2.00	3.00	4.30abc	3.00abc	4.00	5.00
Dashen	1.33	4.00	4.67	2.00	3.00	4.00bcd	2.00cd	3.67	4.67
EZ1	1.67	4.00	5.00	2.33	3.33	4.30abc	3.33ab	4.33	5.00
Gridiron	1.33	3.67	5.00	2.00	3.67	4.30abc	2.67abcd	4.33	4.67
Rampart	2.00	4.00	4.67	2.00	3.00	4.00bcd	2.67abcd	4.00	5.00
Seedway 48	1.00	2.67	4.00	2.00	4.00	4.00bcd	3.00abc	4.67	5.00
SPP1718	1.00	2.00	4.67	2.00	3.00	4.00bcd	2.33bcd	4.00	4.67
SW001	2.67	5.00	5.00	2.00	3.00	4.00bcd	2.00cd	4.00	5.00
Touchdown	1.33	2.67	4.67	2.00	3.00	4.00bcd	3.00abc	3.67	5.00
0972	1.67	4.33	5.00	2.33	3.33	4.00bcd	3.00abc	4.33	5.00
3255	1.00	4.33	4.33	2.00	3.67	5.00a	3.67a	4.33	5.00
9325	1.33	3.00	5.00	2.00	4.00	5.00a	2.67abcd	4.67	5.00
<i>P</i> value	0.23	0.09	0.19	0.82	0.10	0.007	0.03	0.13	0.45
Significance	NS	NS	NS	NS	NS	**	*	NS	NS

^z1 = none, 2 = slight, 3 = moderate, 4 = moderately severe, 5 = severe.

^yWithin columns, means followed by different letters are significantly different according to Duncan's Multiple Range Test at 5%.

NS, *, **, *** Non-significant or significant at $P \leq 0.05$, 0.01, or 0.001, respectively.

Table 7. Bacterial leaf spot severity and rating evaluation (Dec. 7) for selected peppers varieties grown in Immokalee, FL. during fall 2015.

Variety	Disease severity (%)	Rating (1-5)
Abay	1.38b ^z	0.63b
Antebellum	0b	0b
Aristotle	0b	0b
Bastille	16.88a	3.50a
Bayonet	0b	0b
Blitz	0b	0b
Dashen	1.75b	0.63b
EZ1	0.50b	0.25b
Gridiron	0.13b	0.13b
Rampart	1.13b	0.50b
Seedway 48	0b	0b
SPP1718	0b	0b
SW001	0b	0b
Touchdown	0.63b	0.25b
0972	0b	0b
3255	0b	0b
9325	0b	0b
<i>P</i> value	0.0001	0.0001
Significance	***	***

^z Within columns, means followed by different letters are significantly different according to Duncan's multiple range test at 5%. *** Significant at $P \leq 0.001$.

Ratings on a 0 to 5 scale with 0=no disease, 3= moderate disease, 5=severe BLS throughout canopy.

Note: Heavy rainfall over the course of the trial – 25.51 inches from Oct 2015 – Jan 2016 resulted in substantial losses from bacterial soft rot and crop collapse from a severe infestation by *Phytophthora capsici* after 1st harvest and prohibited the possibility of a second harvest.