

**Evaluation of TYLCV-resistant Tomato Varieties under
Commercial Conditions in Southwest Florida.
Spring 2010**



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Table 1. Seed sources and pruning

Varieties	Company	Number of suckers pruned
Charger	Sakata	No
Katana	Takii	4
Security 28	Harris Moran	2
SVR 200	Seminis	3
Tygress	Seminis	3
Tycoon	Hazera	3
XTM 5467	Sakata	No
UF 8784	UFL	4
UF 8785	UFL	4
FL 47	Seminis	3
Sebring	Syngenta	3

Table 2. Summary of cultural practices used in TYLCV variety evaluation grown with seepage irrigation in Southwest Florida during spring 2010.

Location	Estero, FL.
Experimental Design	CRBD (4 reps)
Irrigation	Seepage
Plot size	18.3 ft
Planting Date	7-Jan-10
Fumigation	Methyl Bromide: Chloropicrin (50:50 @100lb/acre)
Mulch	Metalized/Silver
Linear ft per acre	7,260
Bed Height	8 in
Bed Width	32 in
Bed Spacing	6 ft
Plant Spacing	22 in
Row run	North - South
Plant population	3,967
Harvest Date	
1st	3-May-10
2nd	18-May-10
Planting to 2nd pick	17 weeks

Table 3. Summary of temperature and total rainfall in Estero, FL. during the spring 2010

Period	Temperature (°F)			Total rainfall (inch)
	Min	Max	Average	
January	58.9	46.6	73.4	1.72
February	58.0	46.3	71.2	2.68
March	61.7	48.9	75.3	8.62
April	71.3	60.8	83.1	7.21
May	79.2	69.4	91.4	2.44
Average/Total	65.8	54.4	78.9	22.7

Table 4. Bacterial disease assessment for selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Disease Severity Rating (%) ^Z
Charger	36.3bcde ^Y
Katana	45.0bc
Security 28	31.3cde
SVR 200	41.3bcd
Tygress	26.3de
Tycoon	70.0a
XTM 5467	50.0b
UF 8784	23.3e
UF 8785	26.7de
FL 47	35.0bcde
Sebring	52.5ab
P value	0.0002
Sig.	**

^Z Bacterial disease assessment as disease severity (percentage symptomatic tissue) for bacterial spot was performed on May 10, 2010. The rating did not distinguish between the bacterial spot caused by *Xanthomonas perforans* and bacterial speck caused by *Pseudomonas syringae* pv. *tomato*.

^Y Within columns, means followed by different letters are significantly different according to the LSD at the P level in table.

** Significance at $P \leq 0.01$. *Significance at $P \leq 0.05$. ns Nonsignificance.

Table 5. First harvest marketable fruit yield by size categories for TYLCV resistance selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Marketable Yield				Unmarketable
	5/6	6/6	6/7	Total	
	----- (25-lb boxes/acre) -----				
Charger	208cde ^z	95a	54	357b	667b
Katana	187de	94a	47	328b	293ef
Security 28	581a	77ab	87	745a	697b
SVR 200	315c	94a	29	438b	553c
Tygress	245cd	59abc	35	338b	419d
Tycoon	198cde	83ab	33	314bc	839a
XTM 5467	309cd	76ab	64	450b	905a
UF 8784	69f	45bc	34	148d	226fg
UF 8785	90ef	32c	50	172cd	119g
FL 47	228cd	96a	57	381b	412de
Sebring	468b	96a	81	646a	409de
P value	0.0001	0.01	0.29	0.0001	0.0001
Sign.	**	*	ns	**	**

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

** Significance at $P \leq 0.01$. *Significance at $P \leq 0.05$. ns Nonsignificance.

Table 6. First harvest unmarketable (cull) fruit by category with: odd-shape/zipper, crack and scar for selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Unmarketable by defect			Unmarketable
	Crack	Scar	Odd-shape/ zipper	
	----- (%) -----			(25-lb boxes/acre)
Charger	26.3b ^z	37.0bcd	36.7a	667b
Katana	26.4b	53.2ab	20.3bc	293ef
Security 28	45.4a	23.5de	31.2a	697b
SVR 200	42.2a	41.5abc	16.4c	553c
Tygress	25.8b	58.5a	15.6c	419d
Tycoon	46.5a	22.3de	31.2ab	839a
XTM 5467	28.1b	30.9cde	41.0a	905a
UF 8784	42.1a	15.8e	42.1a	226fg
UF 8785	8.9c	57.8a	33.3a	119g
FL 47	16.1bc	44.3abc	39.5a	412de
Sebring	8.0c	48.5ab	43.4a	409de
P value	0.0001	0.0001	0.0001	0.0001
Sig.	**	**	**	**

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

** Significance at $P \leq 0.01$. *Significance at $P \leq 0.05$. ns Nonsignificance.

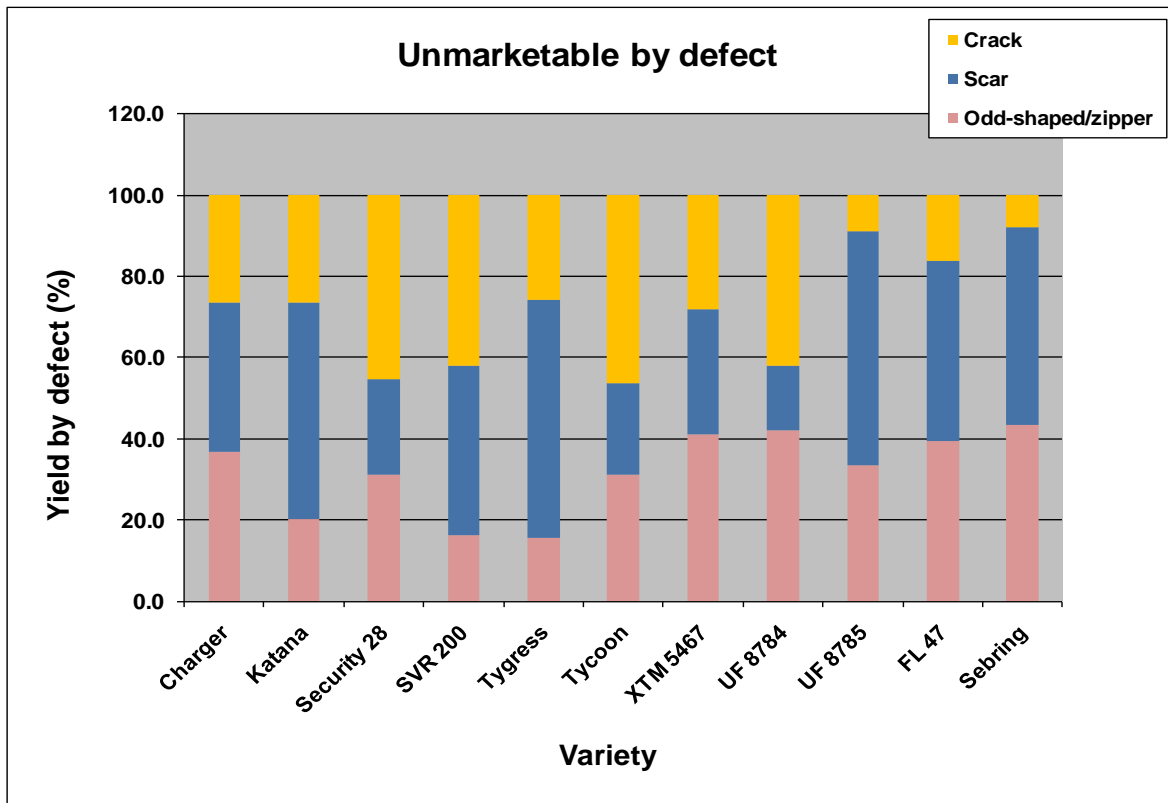
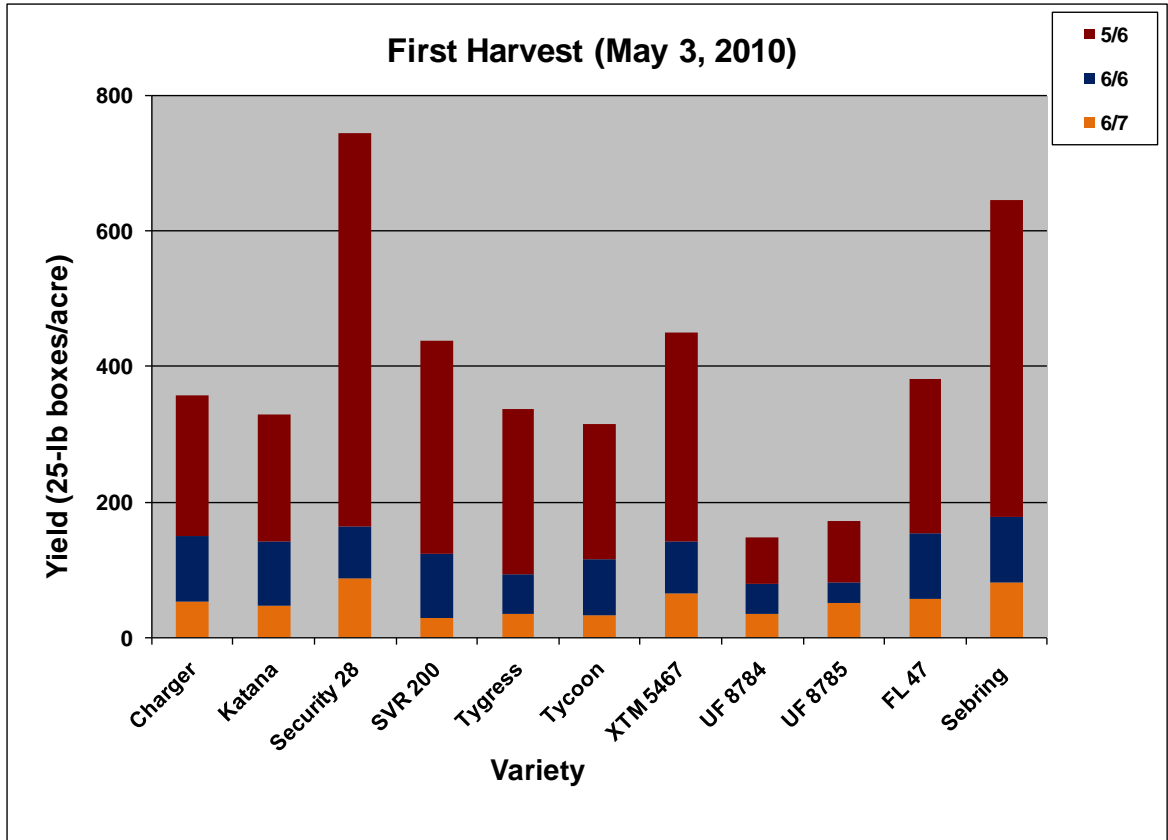


Table 7. Second harvest marketable fruit yield by size categories for TYLCV resistance selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Marketable Yield				Unmarketable
	5/6	6/6	6/7	Total	
	----- (25-lb boxes/acre) -----				
Charger	102ab ^z	120a	182a	405a	482ab
Katana	73abcd	93b	136abc	303bc	227de
Security 28	61bcd	39d	55ef	154ef	301cd
SVR 200	96abcd	51cd	69def	216cdef	246de
Tygress	46cd	46cd	107bcde	198def	124e
Tycoon	43d	56cd	59ef	157ef	416bc
XTM 5467	44d	46cd	45f	134f	560a
UF 8784	95abcd	69bc	119bcd	283bcd	380bcd
UF 8785	124a	65cd	156ab	345ab	292cd
FL 47	99abc	67bcd	82cdef	249cde	303cd
Sebring	73abcd	47cd	86cdef	206def	263de
P value	0.019	0.0001	0.0001	0.0001	0.0001
Sign.	*	**	**	**	**

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

** Significance at $P \leq 0.01$. *Significance at $P \leq 0.05$. ns Non significance.

Table 8. Second harvest unmarketable (cull) fruit by category with: odd-shape/zipper, crack and scar for selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Unmarketable by defect			Unmarketable
	Crack	Scar	Odd-shape/ zipper	
	----- (%) -----			(25-lb boxes/acre)
Charger	16.0cd ^z	46.1bcd	37.9ab	482ab
Katana	15.7cd	53.7abc	30.6bcd	227de
Security 28	26.4abc	40.6cde	33.0bc	301cd
SVR 200	27.4abc	57.3ab	15.3d	246de
Tygress	16.0cd	63.2a	20.8cd	124e
Tycoon	30.5ab	27.4e	42.0ab	416bc
XTM 5467	34.5a	29.4e	36.1ab	560a
UF 8784	21.6bcd	31.7de	46.7ab	380bcd
UF 8785	12.2d	35.3cde	52.5a	292cd
FL 47	19.7bcd	40.7cde	39.7ab	303cd
Sebring	21.1bcd	48.7bcd	30.2bc	263de
P value	0.003	0.0003	0.0007	0.0001
Sign.	**	**	**	**

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

** Significance at $P \leq 0.01$. *Significance at $P \leq 0.05$. ns Non significance.

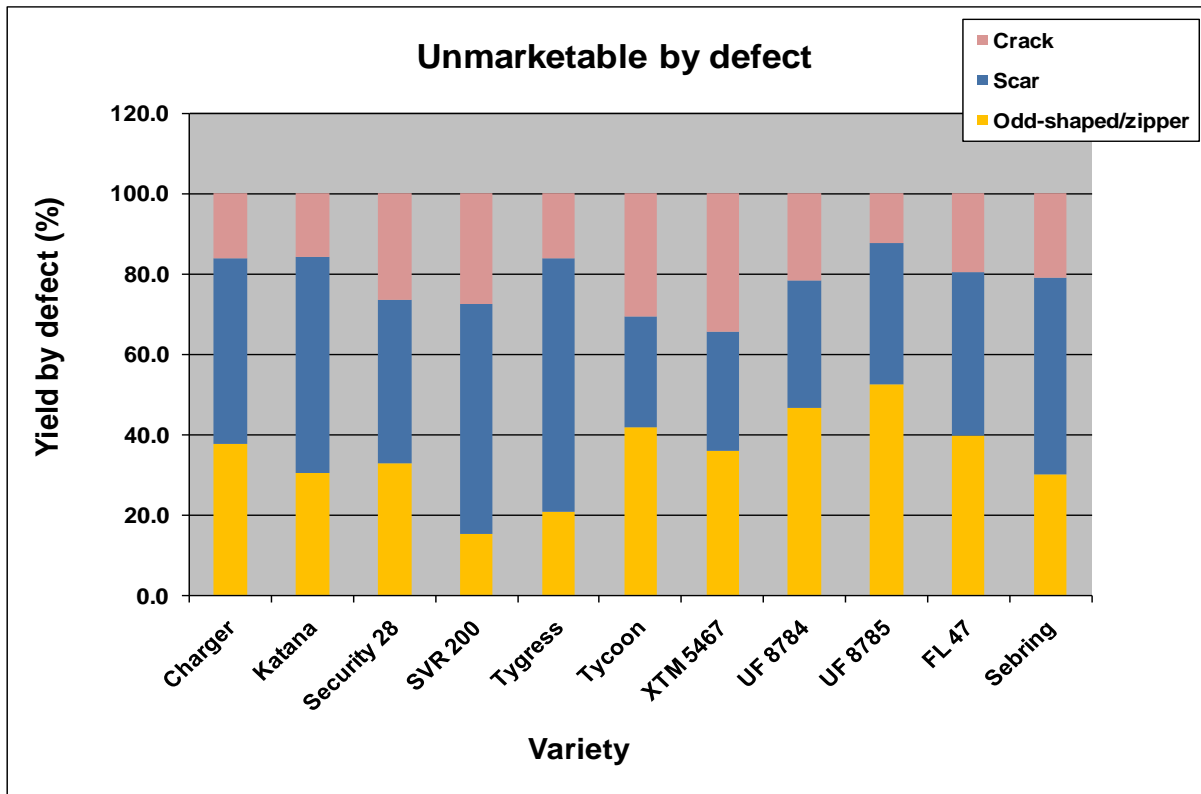
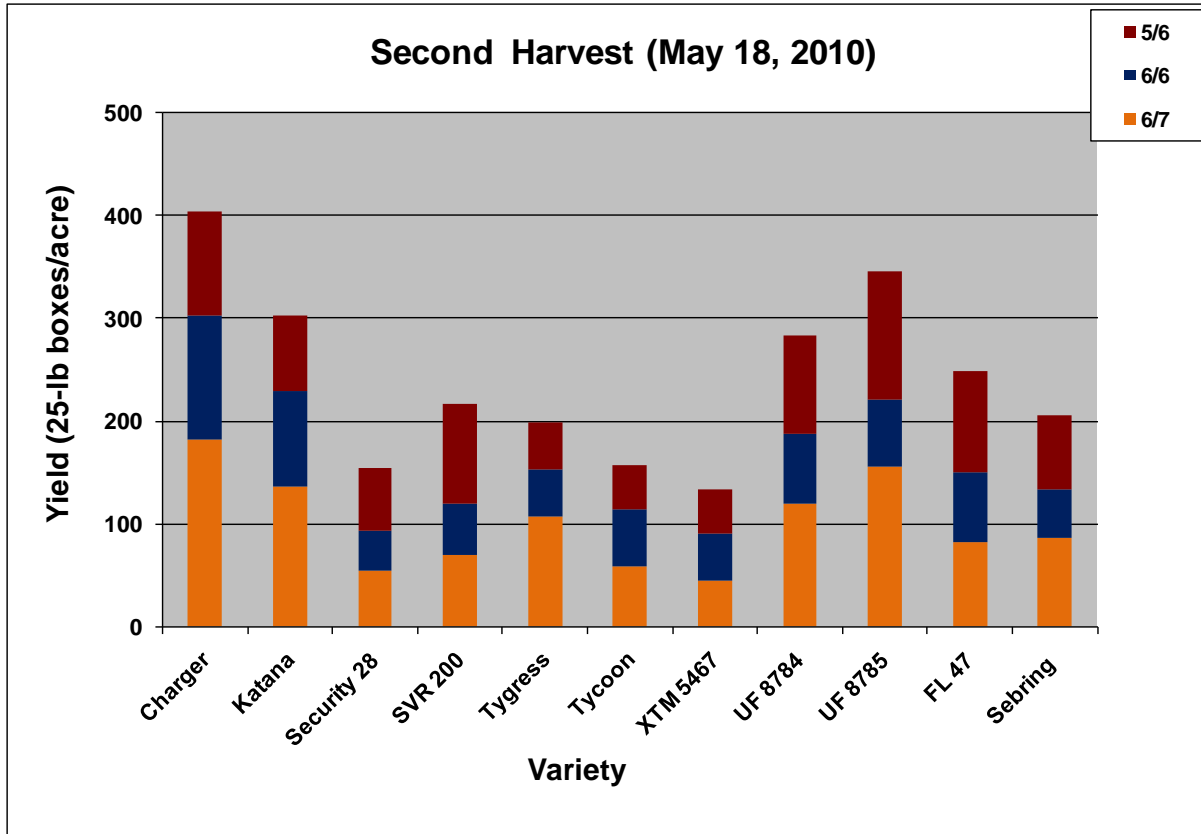


Table 9. Total harvest marketable fruit yield by size categories for TYLCV resistance selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	Marketable Yield				Unmarketable
	5/6	6/6	6/7	Total	
	----- (25-lb boxes/acre) -----				
Charger	310bc ^z	215a	236a	762ab	1,150bc
Katana	261cd	187ab	182abc	631bc	520ef
Security 28	642a	116cd	141bcd	899a	998c
SVR 200	412b	145bcd	98d	655bc	799d
Tygress	291bcd	104d	142bcd	537cd	543ef
Tycoon	241cd	139cd	91d	471cd	1,255b
XTM 5467	353bc	122cd	109cd	584bcd	1,465a
UF 8784	164d	114d	153bcd	431d	606def
UF 8785	214cd	97d	206ab	517cd	411f
FL 47	327bc	164bc	139bcd	630bc	714de
Sebring	542a	143bcd	168abcd	852a	671de
P value	0.0001	0.0001	0.003	0.0001	0.0001
Sign.	**	**	**	**	**

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

** Significance at $P \leq 0.01$. * Significance at $P \leq 0.05$. ns Non significance.

Table 10. Total harvest unmarketable (cull) fruit by category with: odd-shape/zipper, crack and scar for selected tomato varieties grown in spring 2010, Estero, FL.

Variety	Unmarketable by defect			Unmarketable
	Crack	Scar	Odd-shape/ zipper	
	----- (%) -----			(25-lb boxes/acre)
Charger	22.0def ^z	40.8c	37.2abc	1,150bc
Katana	21.8def	53.4ab	24.8de	520ef
Security 28	39.7ab	28.6d	31.7cd	998c
SVR 200	37.6abc	46.3bc	16.0e	799d
Tygress	23.6de	59.6a	16.8e	543ef
Tycoon	41.2a	24.0d	34.8bc	1,255b
XTM 5467	30.5bcd	30.3d	39.1abc	1,465a
UF 8784	29.3cd	25.8d	45.0ab	606def
UF 8785	11.3g	41.8bc	46.9a	411f
FL 47	17.6efg	42.8bc	39.6abc	714de
Sebring	13.1fg	48.6bc	38.3abc	671de
P value	0.0001	0.0001	0.0001	0.0001
Sign.	**	**	**	**

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

** Significance at $P \leq 0.01$. * Significance at $P \leq 0.05$. ns Not significance.

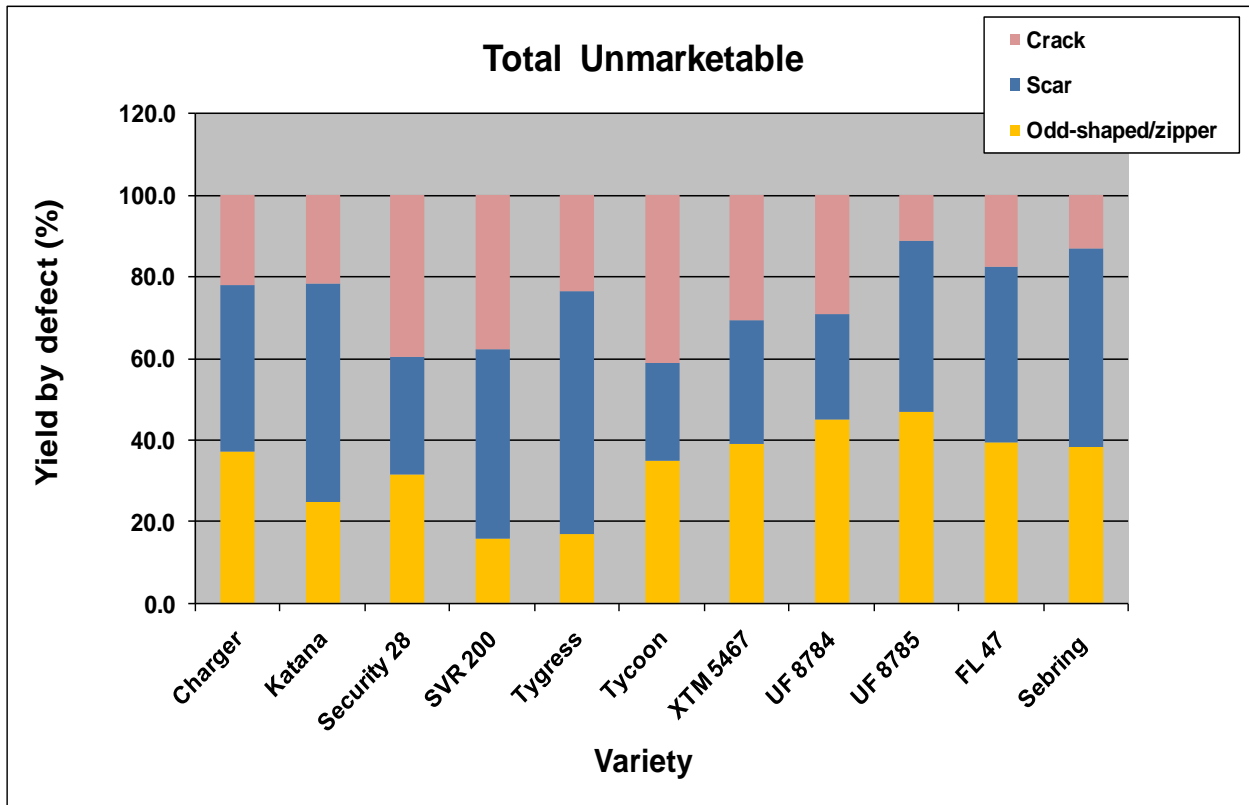
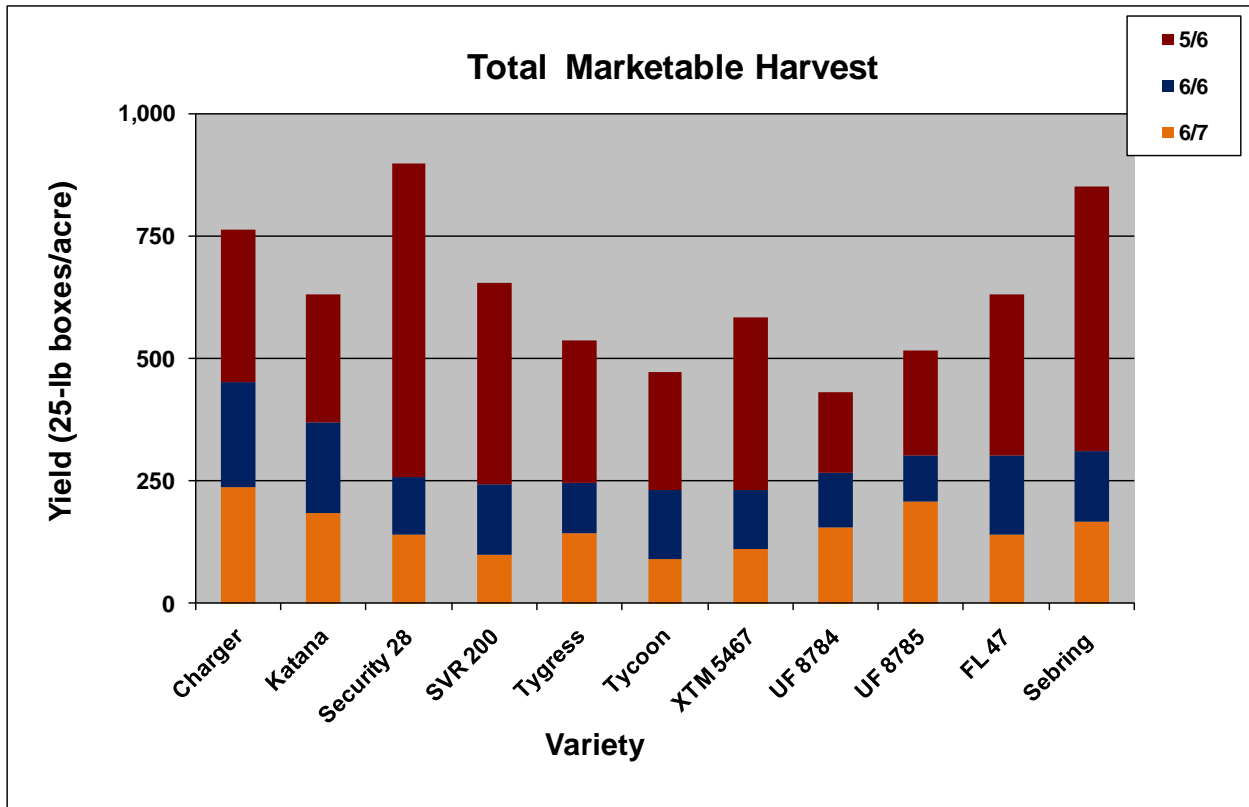


Table 11. Tomato TYLCV post-harvest evaluation of fruit firmness at table ripe stage for the first and second harvest for selected tomato varieties grown in Estero, FL. during spring 2010.

Variety	First Harvest (DAH ^Z)		Second Harvest (Table Ripe)	
	Deformation (mm) ^Z	Color	Deformation (mm) ^Z	Color
Charger	2.23a ^Y	red	2.98bcd	light red
Katana	2.41ab	light red	2.35ab	pink
Security 28	2.59abc	light red	2.28ab	light red
SVR 200	2.63abc	red	2.96bcd	red
Tygress	3.09bcd	very red	2.96bcd	light red
Tycoon	4.91e	red	3.28cd	light red
XTM 5467	3.36cd	light red	2.60abc	light red
UF 8784	3.81d	light red	4.37e	light red
UF 8785	2.89abc	red	3.75de	red
FL 47	2.71abc	light red	3.53d	light red
Sebring	2.42ab	light red	1.89a	pink
P value	0.0001	-	0.0001	-
Sign.	**	-	**	-

^Z DAH = days after harvest.

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

** Significance at $P \leq 0.01$ * Significance at $P \leq 0.05$ ns Not significance.

Table 12. TYLCV-resistant variety blind evaluation (tomato plant and fruit evaluation was calculated from the contribution of 14 participants based in rating scale 1-5; 1= very poor and 5 = very good).

Variety	Field Tomato Plants and Fruit Evaluation						
	Earliness Type	Plant Vigor	Fruit Size	Firmness	Fruit Quality	Yield Potential	Overall Rate
Charger	2.8d ^z	3.4abc	2.7def	2.9c	2.5cd	2.9de	2.6cde
Katana	2.8d	3.5abc	2.2f	3.3abc	2.5cd	2.2f	2.5de
Security 28	3.7bc	3.4abc	4.4a	3.9a	3.8a	4.4a	4.1a
SVR 200	4.4a	3.6ab	3.0cd	3.3abc	3.1b	3.3cd	3.5b
Tygress	3.5c	3.0cd	3.0cd	3.7ab	2.8bcd	2.8de	2.7cde
Tycoon	2.7d	2.6d	2.8de	2.9c	2.3d	2.5ef	2.5de
XTM 5467	4.2ab	3.0cd	3.5bc	3.3abc	2.5cd	4.0ab	3.1bcd
UF 8784	2.9d	3.8a	2.8de	2.7c	2.4d	2.2f	2.5de
UF 8785	2.5d	3.8a	2.3ef	2.8c	2.3d	2.2f	2.3e
FL 47	2.7d	3.2bc	2.7def	3.0c	3.0bc	2.7ef	2.8cde
Sebring	3.6c	3.0cd	3.9ab	3.1bc	3.0bc	3.6bc	3.1bc
P values	0.0001	0.0001	0.0001	0.003	0.0001	0.0001	0.0001
Sig.	**	**	**	**	**	**	**

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

** Significance at $P \leq 0.01$ * Significance at $P \leq 0.05$ ns Not significance.