



# UNIVERSITY OF FLORIDA

Evaluation of TYLCV-resistant Tomato  
Varieties under Commercial  
Conditions in Southwest Florida  
Spring 2008

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# Tomato Yellow Leaf Curl Virus

- Is the worst tomato disease, because can have tremendous impact in yields.
- Around the world, TYLCV has caused major problems in the Middle East, North Africa and the Caribbean.
- The virus was discovered in Israel and was introduced in the early 1990 to the Dominican Republic.....Florida.
- In order to lessen the incidence of the TYLCV the “tomato free periods” is very important.
- Now if the virus become more strong another tool is “resistant varieties”

Most of the TYLCV resistant genetic material is coming from Israel a dry weather conditions.

## Objectives

To evaluate the horticultural performance of the TYLCV varieties such as yield, fruit qualities and post-harvest characteristics under South Florida field conditions.

**Spring 2008  
14 varieties  
Six'L/IMK**



# Tomato Varieties Evaluation Spring 2008

Variety	Source	Pruning No Suckers & Ground Suckers
BHN 765	BHN	No
BHN 745	BHN	No
FLA 8579	UF	No
FLA 8632	UF	No
FLA 8633	UF	No
HA 3074 (Inbar)	Hazera	4-5
HA 3075 (Ofri)	Hazera	2-3
HA 3091	Hazera	2-3
Sak 5421	Sakata	No
Sak 5443	Sakata	No
Security 28	Harris Moran	2
Tygress	Seminis	2-3
Sebring (control)	Syngenta	2-3
FL 47 (control)	Seminis	2-3
<b>Roma Tomatoes</b>		
Shanty	Hazera	No
Sak 5808	Sakata	4-5
Mariana (control)	Sakata	No

# Spring 07 vs. Spring 08

- Whitefly pressure was heavier in Spring 2007 than in Spring 2008.
- In 2007, the average whitefly count was  $9.9 \pm 0.38$  (mean  $\pm$  SE) adult per leaf, as compared to  $0.8 \pm 1.04$  adult per leaf in 2008.
- Therefore, number of TYCLV symptomatic plants was lower in 2008 than 2007.

# TYLCV and Diseases Evaluation Spring 2008

Variety	Virus incidence (%)	Bacterial Spot Rating (1-5)	Furasium crown rot (%)
BHN 765	Ob	4.0a	0b
BHN 745	Ob	2.0bc	3.4b
FLA 8579	Ob	2.0bc	0b
FLA 8632	Ob	1.3c	3.4b
FLA 8633	Ob	2.7abc	0b
HA 3074 (Inbar)	Ob	3.3ab	18.5a
HA 3075 (Ofri)	Ob	2.0bc	3.4b
HA 3091	Ob	3.0ab	5b
Sak 5421	Ob	2.0bc	5b
Sak 5443	Ob	2.7abc	3.4b
Security 28	Ob	3.0ab	3.4b
Tygress	Ob	3.3ab	3.4b
Sebring (control)	11.5a	3.0ab	Ob
FL 47 (control)	6.3a	2.7abc	Ob
	<b>Roma Tomatoes</b>		
Shanty	Ob	3.3	0
Sak 5808	Ob	3.0	5
Mariana (control)	10a	2.3	6.5

# Spring 2008 Round Tomatoes

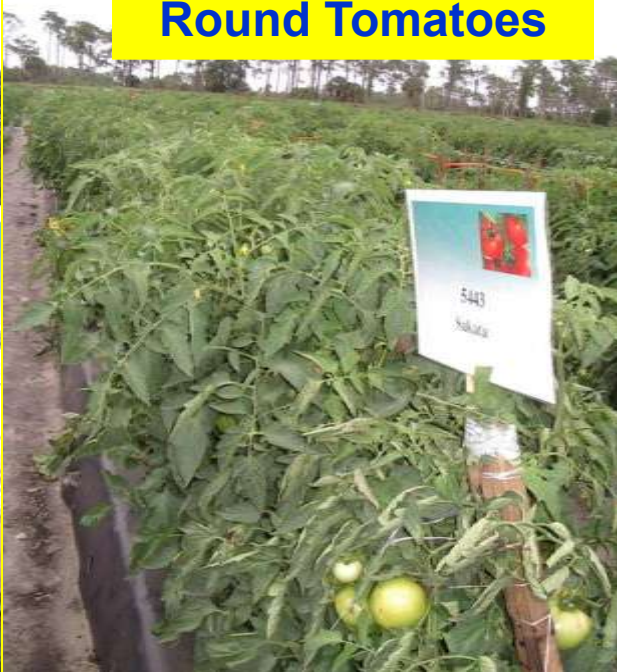




# Spring 2008 Round Tomatoes



# Spring 2008 Round Tomatoes



# Spring 2008 Round Tomatoes



# Total Marketable Fruit Yield Grower/Immokalee, Spring 2008

Varieties	Yield (25 lb-boxes <sup>2</sup> /acre)				
Total Harvest (three harvest)					
	XL	L	M	Cull	Total
Round Tomatoes					
<b>BHN 745</b>	1,593ab	787	327cd	1,092ab	2,706
<b>BHN 765</b>	1,580ab	741	432bcd	1,151ab	2,752
<b>FLA 8579</b>	889d	905	579bc	657cde	2,373
<b>FLA 8632</b>	171e	578	1,436a	557def	2,185
<b>FLA 8633</b>	848d	850	588bc	842bcd	2,286
<b>HA 3074 (Inbar)</b>	1,091cd	511	600bc	516def	2,202
<b>HA 3075 (Ofri)</b>	1,365abc	731	436bcd	681cde	2,532
<b>HA 3091</b>	1,635a	594	215d	1,332a	2,444
<b>Sak 5421</b>	1,249bc	649	534bc	1,320a	2,432
<b>Sak 5443</b>	1,571ab	707	335cd	1,010abc	2,613
<b>Security 28</b>	1,667a	491	231d	991abc	2,389
<b>Tygress</b>	1,262bc	719	598bc	231f	2,580
<b>Sebring (control)</b>	1,279abc	972	629b	487def	2,880
<b>FL 47 (control)</b>	1,627a	768	367bcd	448ef	2,761
<b>Sig.</b>	**	ns	**	**	Ns

# Unmarketable (cull) Fruit by Defect Category Spring 2008

Varieties	Unmarketable fruits by cull category (%)							
	Total Culls	BES	Zip+CatF	SC	OS	GW	CRK	DISC
<b>Round Tomatoes</b>								
<b>BHN 745</b>	40.9bcd	2.3b	2.3b	17.9a	16.4a	0.6	1.4	0
<b>BHN 765</b>	44.8bc	2.8b	1.9b	21.2a	14.2a	1.5	3.2	0
<b>FLA 8579</b>	27.3cdef	1.1b	0.9b	10.7b	13.1a	0.9	1.1	0
<b>FLA 8632</b>	25.2ef	2.0b	13.0a	5.9b	3.5b	0.3	1.6	0
<b>FLA 8633</b>	35.1cd	6.4a	1.6b	7.3b	15.4a	0.5	3.8	0
<b>HA 3074 (Inbar)</b>	21.4efg	2.9b	3.9b	7.9b	5.9b	0.1	0.6	0
<b>HA 3075 (Ofri)</b>	28.7dfe	3.7b	1.3b	13.2a	9.9b	0.7	0.0	0
<b>HA 3091</b>	54.5a	3.3b	6.2b	24.1a	17.4a	2.8	0.6	0
<b>Sak 5421</b>	52.6ab	7.3a	0.6b	20.6a	23.2a	0.9	0.1	0
<b>Sak 5443</b>	35.7cde	8.4a	1.6b	14.2a	10.6	0.2	0.7	0
<b>Security 28</b>	43.5bcd	3.2b	4.6b	10.8b	24.2a	0.6	0.2	0
<b>Tygress</b>	9.6g	0.2b	1.3b	3.0b	4.5b	0.0	0.4	0
<b>Sebring (control)</b>	15.6fg	0.3b	1.8b	6.5b	6.1b	0.4	0.5	0
<b>FL 47 (control)</b>	16.5fg	1.3b	1.3b	4.8b	8.0b	0.5	0.4	0
<b>Sig.</b>	*	*	*	*	*	Ns	ns	Ns

# Romas Spring 2008



# First Harvest and Total Marketable Fruit Yield Grower/Immokalee, Spring 2008.

Roma Tomatoes											
	First Harvest					Total Harvest (three harvest)					
Variety	XL	L	M	S	FHT	XL	L	M	S	Cull	Total
Shanty	504	19b	0	0	523	757ab	620b	262b	43	2,181a	1,682b
Sak 5808	337	304a	0	0	641	655b	1,656a	659a	51	298b	3,021a
Mariana (control)	774	73b	0	0	847	1,086a	846b	710a	242	394b	2,884a
Sig.	ns	*	ns	ns	ns	*	*	*	ns	**	*

# Unmarketable (cull) Fruit by Defect Category Spring 2008

Varieties	Unmarketable fruits by cull category (%)							
Total Culls	BES	Zip+CatF	SC	OS	GW	CRK	DISC	
<b>Roma Tomatoes</b>								
<b>Shanty</b>	130.3a	0.4	1.9	10.0a	112.9a	1.2	0.0	3.9
<b>Sak 5808</b>	10.0b	0.1	0.2	4.4b	5.2b	0.1	0.0	0
<b>Mariana (control)</b>	14.2b	0.1	0.5	2.4b	10.8b	0.4	0.0	0
<b>Sig.</b>	*	ns	Ns	*	**	ns	ns	**



# Post-Harvest Evaluation



# Post-harvest as Firmness and Color Spring 2008

Varieties	Firmness (pressure)	Color (rating 1-10)
<b>Round Tomatoes</b>		
BHN 745	45.7bc	5.0d
BHN 765	45.0cd	5.0d
FLA 8632	43.0e	5.0d
FLA 8579	42.7e	4.5e
FLA 8633	43.0e	6.5a
HA 3091	44.8cd	5.5c
HA 3074 (Inbar)	42.9e	6.0b
HA 3075 (Ofri)	45.1cd	4.5e
Sak 5421	43.2e	5.0d
Sak 5443	45.1cd	6.0b
Security 28	46.8ab	4.0f
Tygress	42.5e	4.5e
Sebring (control)	47.1a	5.0d
FL 47 (control)	43.8de	5.0d
Sig.	**	**
<b>Roma Tomatoes</b>		
Shanty	46.9a	6.0a
Sak 5808	44.5b	5.5b
Mariana (control)	46.4a	5.0c
Sig.	**	**



BHN 745



BHN 765



FLA 8632

**Round Tomatoes  
Spring 2008**



FLA 8579



FLA8633



3091 HAZERA



INBAR



OFRI HAZERA



5421 SAKATA

GARDEN



**Round Tomatoes**  
**Spring 2008**



**Roma Tomatoes**  
**Spring 2008**



# Field days with 65 attendees Spring 2008







# Variety Blind Evaluation Spring 2008

28 participants (scale 1-5; 1 = very poor and 5 = very good)

Varieties	Earliness Type	Plant Vigor	Fruit Size	Firmness	Fruit Quality	Yield Potential	Overall Rating
<b>Round Tomatoes</b>							
<b>BHN 745</b>	2.8efg <sup>z</sup>	3.7c	3.1cd	3.6abcd	3.4bcd	3.6de	3.2b
<b>BHN 765</b>	3.5c	3.3d	3.6b	2.9ef	3.1de	4.4ab	3.1bc
<b>FLA 8579</b>	4.1b	2.6e	2.2e	2.8f	3.2cd	3.6de	2.4de
<b>FLA 8632</b>	3.4cd	4.7a	1.3f	2.7f	3.2cd	1.8h	1.8f
<b>FLA 8633</b>	4.4a	4.2b	2.3e	2.2g	2.5f	2.8fg	2.2ef
<b>HA 3091</b>	3.7c	2.7e	4.0a	3.0ef	3.0de	4.2abc	2.7cd
<b>HA 3074 (Inbar)</b>	2.9ef	2.6e	3.3c	3.7abc	3.7ab	2.6g	3.0bc
<b>HA 3075 (Ofri)</b>	2.4h	2.7e	4.1a	3.2def	3.2cd	3.9cd	3.2bc
<b>Sak 5421</b>	3.6c	4.1b	3.4bc	2.8f	2.7ef	4.1bc	3.1bc
<b>Sak 5443</b>	3.1de	4.3b	4.1a	3.9ab	3.6abc	4.5a	3.7a
<b>Security 28</b>	3.5c	3.9bc	4.2a	4.1a	3.4bcd	4.4ab	3.8a
<b>Tygress</b>	2.5hg	2.4e	2.8d	3.7abc	3.8ab	2.9f	2.9bc
<b>Sebring (control)</b>	2.8efg	4.3b	3.1cd	3.3cde	3.9a	3.4e	3.1bc
<b>FL 47 (control)</b>	2.6fgh	3.3d	3.2c	3.5cde	3.5abc	3.7de	3.2b
<b>Sig.</b>	**	**	**	**	**	**	**
<b>Roma Tomatoes</b>							
<b>Shanty</b>	3.9a	3.0a	3.9a	3.6	1.8b	4.5a	2.2b
<b>Sak 5808</b>	2.0c	2.1b	2.7b	3.4	3.8a	2.9c	2.6b
<b>Mariana (control)</b>	3.5b	2.1b	3.9a	3.5	3.8a	3.8b	3.6a
<b>Sig.</b>	**	**	**	ns	**	**	**



# Variety Blind Evaluation Spring 2008

28 participants (scale 1-5; 1 = very poor and 5 = very good)

Varieties	Overall Rating
<b>Round Tomatoes</b>	
BHN 745	3.2b
BHN 765	3.1bc
FLA 8579	2.4de
FLA 8632	1.8f
FLA 8633	2.2ef
HA 3091	2.7cd
HA 3074 (Inbar)	3.0bc
HA 3075 (Ofri)	3.2bc
Sak 5421	3.1bc
Sak 5443	3.7a
Security 28	3.8a
Tygress	2.9bc
Sebring (control)	3.1bc
FL 47 (control)	3.2b
Sig.	**
<b>Roma Tomatoes</b>	
Shanty	2.2b
Sak 5808	2.6b
Mariana (control)	3.6a
Sig.	**

# Conclusions

- Under low virus pressure (spring 2008): Sec 28, Tygress, BHN 745 and 765, HA 3091, 3075 (Ofri), 3074 (Inbar), and Sak 5443. But, Tygress and Inbar had the lowest percent of culls. The best roma TYCLV variety was SAK 5808.
- During the spring 2008, the firmness fruit Sec 28, but had the lowest color rating. The most firm and highest color rating among the roma varieties was Shanty.

# Thanks... thanks... Thanks

- Southwest Vegetable Growers Association
- Sakata, Hazera, Harris Moran, Seminis, and BHN.
- Redi-Plants and Six'L Farms.

For providing monetary or in-kind support to this project.

