



UNIVERSITY OF  
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# Screening Varieties for resistance to Tomato Yellow Leaf Curl Virus Spring 2007

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# Tomatoes in Florida

Staked tomatoes (#1 USA),  
Fall/Winter/Spring-Mature Green  
38,200 acres/U\$622,251 (Millions)  
70% of the tomato production  
is in the Southwest Florida area:  
Collier (14,086 acres);  
Manatee (11,300 acres)



# Facts: Tomato Yellow Leaf Curl Virus (TYLCV)

- Is the worst tomato disease, because can have tremendous impact in yields.
- The disease is induced by a number of begomoviruses, transmitted by the whitefly *Bemisia tabaci* (Gennadius) biotype B and other *B. tabaci* biotypes.
- Leaf symptoms include chlorotic margins, small leaves which are cupped, thick and rubbery. The majority (up to 90%) of flowers abscise after infection.
- 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".



Ozores-Hampton et al., 2008. Evaluation of TYLC virus-resistant varieties under commercial conditions in Southwest Florida, Fla. Tomato Inst. Proc. PRO525, pp.12-17.

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 2007  
10 varieties  
SWFREC/IMK



# Tomato Varieties Evaluation Spring 2007

Variety	Source	Pruning No Suckers & Ground Suckers
BHN 745	BHN Seed	2-3
FLA 8576	UFz	2-3
FLA 8579	UF	2-3
FLA 8580	UF	2-3
HA 3074 (Inbar)	Hazera	2-3
HA 3075 (Ofri)	Hazera	2-3
HA 3078	Hazera	2-3
Tygress	Seminis	2-3
FL 47 (control)	Seminis	2-3
Roma Tomatoes		
HA 3371 (Shanty)	Hazera	2-3
HA 3811	Hazera	2-3

**Three Harvest**  
**Extra-large (5/6), Large (6/6),**  
**Medium (6/7) and un-marketable**



# Results



# Spring 2007

- Whitefly pressure was heavier than other Springs.
- In 2007, the average whitefly count was  $9.9 \pm 0.38$  (mean  $\pm$  SE) adult per leaf
- Number of TYCLV symptomatic plants was high in 2007.

# TYLCSV Evaluation Spring 2007

Variety	Virus incidence (%)
BHN 745	33.9cd
FLA 8576	39.3c
FLA 8579	32.1cd
FLA 8580	62.5b
HA 3074 (Inbar)	21.4cd
HA 3075 (Ofri)	35.7cd
HA 3078	28.6cd
Tygress	16.1d
FL 47 (control)	94.6a



# Spring 2007 Round Tomatoes



# First Harvest Marketable Fruit Yield SWFREC/Immokalee, Spring 2007

Varieties	Yield (25-lb boxes/acre)			
First Harvest				
	XL	L	M	Total
Round Tomatoes				
BHN 745	630cd	72abc	41	744
FLA 8576	442cd	39c	48	530
FLA 8579	694bc	64abc	39	797
FLA 8580	590cd	105a	36	731
HA 3074 (Inbar)	991ab	68abc	33	1,092
HA 3075 (Ofri)	726bc	96ab	56	878
HA 3078	1,118a	70abc	50	1,238
Tygress	722bc	59bc	53	835
Florida 47 (control)	330d	43c	59	431
Sig.	**	*	ns	ns

# Total Marketable Fruit Yield SWFREC/Immokalee, Spring 2007

Varieties	Yield (25-lb boxes/acre)				
Total Harvest					
	XL	L	M	Cull	Total
Round Tomatoes					
BHN 745	770ab	128d	175	1,433a	1,073bcd
FLA 8576	584ab	128d	273	1,095bc	985cd
FLA 8579	888ab	175bcd	249	1,022bc	1,312bcd
FLA 8580	813ab	305a	324	694d	1,442bc
HA 3074 (Inbar)	1,472a	232abc	311	833cd	2,015a
HA 3075 (Ofri)	1,025a	264ab	271	708d	1,561ab
HA 3078	1,590a	217abcd	262	1,094bc	2,069a
Tygress	1,039a	211bcd	269	1,146b	1,518abc
Florida 47 (control)	430b	169cd	255	596d	854d
Sig.	**	**	ns	**	**



## Romas Spring 2007



## First and Total marketable fruit yield SWFREC/Immokalee, Spring 2007

Roma Tomatoes			
Varieties	First total harvest	Total Culls	Total Harvest
Shanty	600	1,300	951
HA 3811	159	314	622
Sig.	*	*	*

# Unmarketable (cull) Fruit by Defect Category Spring 2007

Varieties		Unmarketable fruits by cull category (%)					
Total Culls		BES	Zip+CatF	SS+YS	Crk	OS	Other
Round Tomatoes							
BHN 745	133.4a	7.2ab	13.2ab	60.9a	30.5a	15.6a	6.0
FLA 8576	111.9a	6.6ab	30.3a	48.6a	11.8ab	8.5b	6.1
FLA 8579	77.9ab	7.0ab	8.3b	26.5b	11.4ab	19.7a	5.0
FLA 8580	48.1b	2.6b	7.4b	16.7b	7.9b	9.5b	4.0
HA 3074 (Inbar)	41.8b	2.7b	8.0b	14.2b	7.4b	6.1b	3.4
HA 3075 (Ofri)	45.4b	5.0b	4.4b	26.3ab	2.2b	6.1b	1.4
HA 3078	52.9b	11.6a	4.3b	14.5b	4.4b	14.2a	3.9
Tygress	75.4ab	2.9b	9.2ab	33.4ab	21.3a	6.0b	2.6
FL 47 (control)	69.8ab	3.2b	8.0b	15.6b	35.4a	4.6b	3.0
Sig.	**	**	**	**	**	**	ns
Roma Tomatoes							
Shanty	136.7	2.4	6.7	43.8	1.7	75.7	6.4
HA 3811	50.5	0.0	24.5	6.8	7.7	10.9	1.6
Sig.	**	ns	**	**	**	**	ns
Blossom end scar (BES) Radial and concentric cracking (Crk)		Zipper and catface (Zip+CatF) Odd shape (OS)		Sunscald and yellow shoulder (SS + YS) Other cull categories (Other)			

# Post-Harvest Evaluation



# Post-harvest as Firmness and Color Spring 2007

Varieties	Firmness (pressure)	Color (rating 1-10)
Round Tomatoes		
BHN 745	45.2c	6.0b
FLA 8576	45.0c	7.0a
FLA 8579	45.3c	5.5b
FLA 8580	45.2c	6.0b
HA 3074 (Inbar)	45.7bc	5.0c
HA 3075 (Ofri)	47.0ab	5.0c
HA 3078	45.2c	6.0b
Tygress	47.7a	4.0d
FL 47 (control)	44.2c	5.5b
Sig.	**	**
Romas Tomatoes		
Shanty	46.3	5.0
HA 3811	45.6	7.0
Sig.	ns	**



**BHN 745**



**Fla 8576**



**Fla 8579**

**Round Tomatoes**

**Spring 2007**



**Fla 8580**



**Inbar**



**Ofri**



**HA 3078**



**Tygress**



**FL 47**

# Roma Tomatoes

## Spring 2007





# Conclusions

- Under high virus pressure (spring 2007): HA 3078, 3074 (Inbar) and 3075 (Ofri). Tygress had high yield as well, but high percent of culls fruit with sunscald and yellow shoulder. The best roma variety was Shanty, but with high percent of cull fruits.
- In general the most firm fruits were the lowest color rating. Tygress very firm, but had low color rating. The most firm and highest color rating among the roma varieties was Shanty.

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