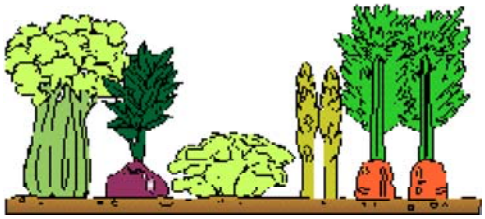

Vegetarian Newsletter

A Vegetable Crops Extension Publication
Vegetarian 02-08
August 2002

University of Florida
Institute of Food and Agricultural Sciences
Cooperative Extension Service

Vegetarian Archive

Print Version

EVENTS CALENDAR

COMMERCIAL VEGETABLES

- GCREC Tomato Variety Evaluation Spring 2002
- Tomato Varieties for Florida
- Growing Carrots - Organically

VEGETABLE GARDENING

- *No article this month*

List of Extension Vegetable Crops Specialists

Events Calender

American Society for Horticultural Sciences. (in conjunction with XXVI International Horticultural Congress). Toronto, Ont., Canada. August 11-17, 2002.

The South Florida Drip Irrigation School: Managing Water and Nutrients in Vegetable Production. Homestead, Fla., Thursday, August 22, 2002, 8:15 a.m.- 4:00 p.m. Contact: Teresa Olczyk (305) 248-3311 x232.

Florida Tomato Institute. Ritz Carlton Hotel, Naples, Fla. Begins September 4, 2002. Contact Charles Vavrina for information.

Cucurbitaceae 2002. Naples Beach Hotel and Golf Club; Naples, Fla. December 8-12. Contact Don Maynard (941)751-7636 x239 or dnma@mail.ifas.ufl.edu .

Commercial Vegetable Production

GCREC Tomato Variety Evaluation Spring 2002

In 2000-2001, 43,800 acres of tomatoes were harvested in Florida, yielding 63.7 million 25-pound cartons worth over $588 million. Tomatoes accounted for over 34% of the total value for all vegetables grown in Florida during 2000-2001, making it the most important vegetable produced in the state. The Palmetto-Ruskin area (west-central Florida) accounted for over 36% of the state's total fresh market tomato production in 1999-2000.

A tomato variety trial was conducted in spring 2002 at the Gulf Coast Research and Education Center-Bradenton located in west-central Florida to evaluate fresh market tomato varieties and breeding lines. The replicated yield trial included 27 entries.

Seeds were sown on 15-16 February into planter flats containing a commercial mix. Transplants were fertilized periodically with a liquid 20-20-20 (N-$P_20_5K_20$) to sustain growth during production. Plants were conditioned before transplanting by limiting water and nutrients in the final phase of production.

The land was prepared in early February. Beds were formed and fumigated with methyl bromide:chloropicrin, 67:33 at 350 lb/treated acre. Banded fertilizer was applied in shallow grooves on the bed shoulders at to provide 282-0-392 lbs N-P_20_5-K_20/A after the beds were pressed and before the white polyethylene mulch was applied. The final beds were 32-in. wide and 8-in. high, and were spaced on 5-ft centers with six beds between seepage irrigation/drainage ditches, which were on 41-ft centers.

Transplants were set in the field on 4 March and spaced 24 in. apart in single rows down the center of each bed. Transplants were immediately drenched with water containing 16 fl. oz/acre of imidacloprid for silverleaf whitefly control. Four replications of 10 plants per entry were arranged in a randomized complete block design. However, data is reported for only two replications because of poor growth in the other two replications. Plants were lightly pruned, staked, and tied.

Plants were scouted for pests throughout the season. A preventative spray program was followed for management of plant pathogens.

Fruit were harvested three times at or beyond the mature-green stage on 7 May and 20-21 May and 3-4 June. Tomatoes were graded as cull or marketable by U.S. standards for grades and marketable fruit were sized by machine. Marketable fruits of each size were counted and weighed.

Seasonal yields from three harvests ranged from 1634 cartons/acre for HMX 0800 to 2967 cartons/acre for Fla. 7973. Twenty other entries had yields similar to those of Fla. 7973. All but one entry produced yields greater than the state average yield for spring 2000 of 1693 cartons/acre.

Yields of extra-large fruit varied from 1256 cartons/acre for ACX 12A to 2543 cartons/acre for Fla. 7926. Yields of Fla. 7926 extra large fruit were not different from those of 17 other entries. Large fruit yields ranged from 169 cartons/acre for RFT 0252 to 707 cartons/acre for 'Lucky 13'. Cull fruit for the entire season varied from 12% by weight for RFT 0252 and 'Florida 91' to 30% for ACX 12A. Blossom-end rot, rough shoulders, and small fruit were the principal defects during the latter part of the season. Average fruit weight was from 5.5 oz for 'Lucky 13' to 7.6 oz for RFT 0417. TYLC- infected plants ranged from 0 for several entries to 60% for HMX 0800. Over 80% of the entries had at least one infected plant.

Yields in the spring 2002 season were similar to those in recent spring seasons at this location. Exceptional experimental hybrid performers in spring 2002 were Fla. 7973, Fla. 7926, HMX 1803, XTM 0227, Fla. 7810, HA-3060, and TY00-568.

Table 1. Seed source, total marketable yields, and average marketable fruit weight, for fresh market tomato entries in spring 2002. (Harvest Dates: 7, 20-21 May and 3-4 June 2002.)

Entry	Source	Total Harvest				Avg Fruit Wt (oz)
		Total	X-Large	Large	Medium	
		----------(cartons/A)[1]----------				
Fla. 7973	GCREC-UF	2967 a[2]	2467 ab	409 c-e	91 bc	6.7 b-e
Fla. 7926	GCREC-UF	2799 ab	2543 a	208 d-f	48 bc	7.2 a-c
HMX 1803	Harris Moran	2787 a-c	2429 ab	281 d-f	78 bc	6.9 b-d
BHN 591	BHN Research	2749 a-c	2380 ab	318 c-f	51 bc	6.9 b-d
BHN 586	BHN Research	2717 a-c	2358 ab	311 c-f	49 bc	6.6 c-e
XTM 0227	Sakata	2666 a-c	2351 ab	267 d-f	47 bc	7.3 ab
Fla. 7810	GCREC-UF	2652 a-c	1903 bc	629 ab	120 b	6.1 ef
HA-3060	Hazera	2652 a-c	2255 ab	327 c-f	71 bc	6.4 d-f
Florida 47	Seminis	2626 a-c	2209 ab	363 c-f	53 bc	6.7 b-e
TY00-568	Hazera	2615 a-c	2195 ab	358 c-f	62 bc	6.7 b-e
HA-3650	Hazera	2602 a-c	2325 ab	244 d-f	33 bc	7.0 a-d
PX150535	Seminis	2596 a-c	2322 ab	237 d-f	37 bc	7.4 ab
RFT 0417	Syngenta	2593 a-c	2385 ab	182 f	25 bc	7.6 a
ASX 911	Agrisales	2521 a-c	2157 ab	313 c-f	51 bc	6.8 b-e
RFT 0247	Syngenta	2511 a-c	2224 ab	268 d-f	18 bc	7.1 a-d
EX1405037	Seminis	2500 a-c	2257 ab	214 d-f	29 bc	7.3 ab
RFT 0252	Syngenta	2492 a-c	2310 ab	169 f	12 c	7.1 a-d
SVR 1432427	Seminis	2473 a-c	2134 ab	294 c-f	45 bc	7.0 a-d
Agriset 761	Agrisales	2452 a-d	1926 bc	415 cd	111 bc	6.6 c-e
Florida 91	Seminis	2410 a-d	2141 ab	222 d-f	47 bc	6.9 a-d
Lucky 13	Agrisales	2391 a-d	1390 cd	707 a	294 a	5.5 g
HA-3636	Hazera	2275 b-e	1904 bc	306 c-f	65 bc	6.8 b-e
Fla. 7964	GCREC-UF	2260 b-e	1934 bc	267 d-f	58 bc	6.7 b-e
Sanibel	Seminis	2138 c-f	1904 bc	202 ef	31 bc	6.8 b-e
ACX12A	Abbott & Cobb	1837 d-f	1256 d	494 bc	86 bc	5.9 fg
RFT 6153	Agrisales	1752 ef	1505 cd	208 d-f	39 bc	6.9 b-d
HMX 0800	Harris Moran	1634 f	1370 cd	228 d-f	35 bc	6.8 b-d

[1]Carton = 25 lbs. Acre = 8712 lbf. Grading belt hole sizes: X-Large = no belt, greater than 2.75"; Large = 2.75"-2.51"; Medium = 2.5"-2.26"; and Cull < 2.25".

[2]Mean separation in columns by Duncan's multiple range test, 5% level.

(Maynard - Vegetarian 02-08)

Tomato Varieties for Florida

Variety selections, often made several months before planting, are one of the most important management decisions made by the grower. Failure to select the most suitable variety or varieties may lead to loss of yield or market acceptability.

The following characteristics should be considered in selection of tomato varieties for use in Florida.

Yield - The variety selected should have the potential to produce crops at least equivalent to varieties already grown. The average yield in Florida is currently about 1400 25-pound cartons per acre. The potential yield of varieties in use should be much higher than average.

Disease Resistance - Varieties selected for use in Florida must have resistance to Fusarium wilt, race 1, race 2 and in some areas race 3 ; Verticillium wilt (race 1); gray leaf spot; and some tolerance to bacterial soft rot. Available resistance to other diseases may be important in certain situations, such as Tomato Spotted Wilt resistance in northwest Florida.

Horticultural Quality - Plant habit, stem type and fruit size, shape, color, smoothness and resistance to defects should all be considered in variety selection.

Adaptability - Successful tomato varieties must perform well under the range of environmental conditions usually encountered in the district or on the individual farm.

Market Acceptability - The tomato produced must have characteristics acceptable to the packer, shipper, wholesaler, retailer and consumer. Included among these qualities are pack out, fruit shape, ripening ability, firmness, and flavor.

Current Variety Situation

Many tomato varieties are grown commercially in Florida, but only a few represent most of the acreage. In years past we have been able to give a breakdown of which varieties are used and predominantly where they were being used but this information is no longer available through the USDA Crop Reporting Service.

Tomato Variety Trial Results

Summary results listing the five highest yielding and the five largest fruited varieties from trials conducted at the University of Florida's Gulf Coast Research and Education Center, Bradenton and North Florida Research and Education Center, Quincy for the Spring 2001 season are shown in Table 1. High total yields and large fruit size were produced by BHN 543 at both Bradenton and at Quincy. Large fruit size was produced by PS 150535 at both locations. The same entries were not included at both locations.

Summary of results listing the five highest yielding and five largest fruited entries from trials at the University of Florida's Indian River Research and Education Center, Ft. Pierce; and the North Florida Research and Education Center, Quincy for the fall 2001 season are shown in Table 2. High total yields and large fruit size were produced by Fla. 7943 at Bradenton; Fla. 7943, Florida 91 and Sanibel at Fort Pierce; and by BHN 189 and BHN 537 at Quincy. Fla. 7943, Sanibel and Solar Set produced high yields at two of three locations and Florida 91 and RFT 0418 produced large fruit at two of three locations. Not all entries were included at both locations.

Tomato Varieties for Commercial Production

The varieties listed have performed well in University of Florida trials conducted in various locations in recent years.

Large Fruited Varieties

Agriset 761. Midseason, determinate, jointed hybrid. Fruit are deep globe and green shouldered. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, gray leaf spot. (Agrisales).

BHN-444. Early-midseason maturity. Fruit are globe shape but tend to slightly elongate, and green shouldered. Not for fall planting. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), gray leaf spot, and Tomato Spotted Wilt. **For Trial.** (BHN).

Florida 47. A late midseason, determinate, jointed hybrid. Uniform green, globe-shaped fruit. Resistant: Fusarium wilt (race 1 and 2), Verticillium wilt (race 1), Alternaria stem canker, and gray leaf spot. (Seminis).

Florida 91. Uniform green fruit borne on jointed pedicels. Determinate plant. Good fruit setting ability under high temperatures. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, and gray leaf spot. (Seminis).

Floralina. A midseason, determinate, jointed hybrid. Uniform, green shoulder, flattened, globe-shaped fruit. Recommended for production on land infested with Fusarium wilt, Race 3. Resistant: Fusarium wilt (race 1, 2, and 3), Verticillium wilt (race 1), gray leaf spot. (Seminis).

PS 150535. Midseason, determinate, jointed hybrid. Fruit are oblate and uniform-green shouldered. Recommended for situations where tomato yellow leaf curl virus is expected to be a problem. Resistant: TYLCV, Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, gray leaf spot. (Seminis).

Solar Set. An early, green-shouldered, jointed hybrid. Determinate. Fruit set under high temperatures (92°F day/72° night) is superior to most other commercial varieties. Resistant: Fusarium wilt (race 1 and 2), Verticillium wilt (race 1), Alternaria stem canker, and gray leaf spot. (Seminis).

Sanibel. A late-midseason, jointless, determinate hybrid. Deep oblate shape fruit with a green shoulder. Tolerant/resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, root-knot nematode, and gray leaf spot. (Seminis).

Solimar. A midseason hybrid producing globe-shaped, green shouldered fruit. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, gray leaf spot. (Seminis).

Sunbeam. Early midseason, deep-globe shaped uniform green fruit are produced on determinate vines. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and race 2), gray leaf spot, Alternaria stem canker. (Seminis).

Plum Type Varieties

Marina. Medium to large vined determinate hybrid. Rectangular, blocky, fruit may be harvested mature green or red. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), Alternaria stem canker, root-knot nematodes, gray leaf spot, and bacterial speck. (Sakata).

Plum Dandy. Medium to large determinate plants. Rectangular, blocky, defect-free fruit for fresh-market production. When grown in hot, wet conditions, it does not set fruit well and is susceptible to bacterial spot. For winter and spring production in Florida. Resistant: Verticillium wilt, Fusarium wilt (race 1), early blight, and rain checking. (Harris Moran).

Spectrum 882. Blocky, uniform-green shoulder fruit are produced on medium-large determinate plants. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), root-knot nematode, bacterial speck (race 0), Alternaria stem canker, and gray leaf spot. (Seminis).

Supra. Determinate hybrid rectangular, blocky, shaped fruit with uniform green shoulder. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1 and 2), root-knot nematodes, and bacterial speck. (Syngenta).

Veronica. Tall determinate hybrid. Smooth plum type fruit are uniform ripening. Good performance in all production seasons. Resistant: Verticillium wilt. (Sakata).

Cherry Type Varieties

Mountain Belle. Vigorous, determinate type plants. Fruit are round to slightly ovate with uniform green shoulders borne on jointless pedicels. Resistant: Fusarium wilt (race 2), Verticillium wilt (race 1). For trial. (Syngenta).

Cherry Grande. Large, globe-shaped, cherry-type fruit are produced on medium-size determinate plants. Resistant: Verticillium wilt (race 1), Fusarium wilt (race 1), Alternaria stem blight, and gray leaf spot. (Seminis).

Reference

This information was gathered from results of tomato variety trials conducted during 2001 at locations specified in each table. Tomato variety evaluations were conducted in 2000 by the following University of Florida faculty:

H. H. Bryan Tropical Research & Education Center - Homestead
D. N. Mavnard Gulf Coast Research & Education Center - Bradenton

S. M. Olsón North Florida Research & Education Center - Quincy
P. J. Stoffella Indian River Research & Education Center - Fort Pierce

Table 1. Summary of University of Florida tomato variety trial results, Spring 2001.

Location	Variety	Total yield (ctn/acre)	Variety	Average fruit wt. (oz)
Bradenton	ASX 013	2821	Florida 47	7.8
	BHN 543	2796	RFT 0252	7.6
	Fla. 7973	2681	BHN 543	7.3
	Sunguard	2619	PS 150535	7.2
	ASX 911	2558 [1]	Florida 91	7.1 [2]
Quincy	BHN 543	2475	BHN 543	8.0
	BHN 575	2358	HA 3027	8.0
	Fla. 7973	2350	PS 150535	7.8
	Florida 91	2339	Sanibel	7.7
	RFT 0417	2326 [3]	HA 3028	7.6 [4]

[1]22 other entries had yields similar to ASX 911.
[2]21 other entries had fruit weight similar to Florida 91.
[3]21 other entries had yields similar to RFT 0417.
[4]17 other entries had fruit weight similar to HA 3028.

Seed Sources:

Agrisales: ASX 013, ASX 911
BHN: BHN 543, BHN 575
Hazera: HA 3027, HA 3028
Seminis: Florida 47, Florida 91, Sanibel, Sunguard, PS 150535
Sygenta: RFT 0252, RFT 0417
University of Florida: Fla. 7973

Table 2. Summary of University of Florida tomato variety trial results. Fall 2001.

Location	Variety	Total yield (ctn/acre)	Variety	Average fruit wt. (oz)
Bradenton	NC 99405	3268	Fla. 7943	6.9
	Sanibel	3092	RFT 0418	6.8
	HA 3057	2973	RFT 0442	6.7
	Fla. 7943	2463	Florida 47	6.8
	Agriset 911	2731 [1]	EX 1405037	6.6 [2]
Fort Pierce	Fla. 7943	2463	Florida 47	6.8
	Agriset 761	2355	Fla. 7973	6.6
	Florida 91	2343	Florida 91	6.3
	Solar Set	2229	Floralina	6.2
	Sanibel	2229 [3]	Sanibel	6.0 [4]
Quincy	BHN 537	3029	BHN 537	6.2
	BHN 563	2678	Florida 91	6.1
	BHN 189	2634	BHN 189	5.9
	Solar Set	2558	RFT 0418	5.8
	BHN 555	2554 [5]	BHN 444	5.8 [6]

[1] 21 other entries had yields similar to Agriset 911.
[2] 17 other entries had fruit weight similar to EX 1405037.
[3] 5 other entries had yields similar to Sanibel.
[4] 5 other entries had fruit weight similar to Sanibel.
[5] 14 other entries had yields similar to BHN 555.
[6] 14 other entries had fruit weight similar to BHN 444.

Seed Sources:

Agrisales: Agriset 761, Agriset 911
BHN: BHN 189, BHN 444, BHN 537, BHN 555, BHN 563
Hazera: HA 3057
North Carolina State: NC 99405
Seminis: Florida 47, Florida 91, Floralina, Sanibel, Solar Set, EX 1405037
University of Florida: Fla.. 7943, Fla. 7973

(Olson and Maynard - Vegetarian 02-08)

Growing Carrots - Organically

The word is, a lot of money can be made on organic carrots, but one can also lose a lot of money. Today, organic foods is a full-fledged industry and it continues to grow at estimates between 10 and 20 percent a year. The organic industry has shifted from the fringe to the main stream. Studies by the Organic Trade Association have shown manufacturers of organic products have a median annual growth of 40 percent while retailers have shown a median growth of 15 percent. Large companies are now on board with either an organic program, an organic SKU, or have bought an organic company. These companies include Dole, Gerber, General Mills, Heinz, Tanimura & Antle, and M&M/Mars.

Back to carrots. North America's largest organic produce operator, located in Bakersfield, CA, has recently added organic carrots to its retail products. Growth has been 'tremendous' but only represents approximately 3 percent of their total nationwide sales. For any marketing venture to work, a consistent supply of high quality produce on a year-round basis is paramount. Some of the details that are important to avoid failure are standard cultural practices when growing organically or not. Select land that is suitable for the crop. Weeds are going to be a big cost. Fields known to have a low weed problem would help reduce this cost. Know your soil and its weed potential. Weed control for an organic crop involves many factors such as irrigation, cultivation, bed shaping, hand weeding, and when possible the sterile seed bed technique. Timing is a critical factor in weed control. The easiest time to kill a weed is the cotyledon stage. Another important factor about weed control is not leaving a few weeds that will go to seed and create problems in future years. Plan ahead, organic farming can not be a practice that involves reacting to circumstances. Think at least a year in advance about potential problems and how best to deal with them.

Nematodes are another major problem in carrot production. What can be done to lessen this problem? Know your land, when to plant, where to plant.

Maybe the best overall advice is to start small and have a market outlet before increasing production. Organic carrots will require more capital outlay for packing and a continuous supply than many other crops.

(White - Vegetarian 02-08)

Extension Vegetable Crops Specialists

Daniel J. Cantliffe Professor and Chairman	**Ronald W. Rice** Assistant Professor, nutrition
John Duval Assistant Professor, strawberry	**Steven A. Sargent** Professor, postharvest
Chad Hutchinson Assistant Professor, vegetable production	**Eric Simonne** Assistant Professor, vegetable nutrition
Elizabeth M. Lamb *Assistant Professor, production*	***William M. Stall*** *Professor **and editor**, weed control*
Yuncong Li *Assistant Professor, soils*	***James M. Stephens*** *(retired)* *Professor, vegetable gardening*
Donald N. Maynard *Professor, varieties*	***Charles S. Vavrina*** *Professor, transplants*
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Gulf Coast Research and Education Center - Dover

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