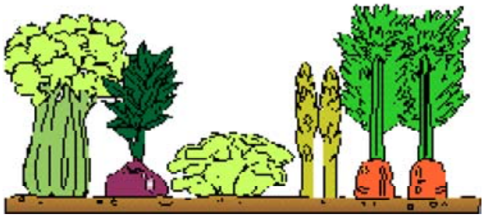

VEGETARIAN NEWSLETTER

A Vegetable Crops Extension Publication
Vegetarian 03-03
March 2003

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

COMMERCIAL VEGETABLES

List of Extension Vegetable Crops Specialists

* * * * * * * UPCOMING EVENTS CALENDAR * * * * * * *

Florida Postharvest Horticulture Industry Tour. Statewide. March 10-13, 2003. Contact Steve Sargent at 352-392-1928 or sasa@mail.ifas.ufl.edu OR Mark Ritenour at 561-201-5548 or mrit@mail.ifas.ufl.edu

Drip Irrigation School. Ft. Pierce-IRREC. March 13, 2003. Contact Betsy Lamb at 772-468-3922 x138 or emlamb@mail.ifas.ufl.edu OR Ed Skvarch at (772)462-1660 or eask@mail.ifas.ufl.edu. This program will provide CEU and CCA credits and certificates of attendance.

National Organic Standards Satellite Downlink. Ft. Pierce-IRREC. March 21, 2003, 1:00-3:00. Contact Betsy Lamb at 772-468-3922 x138 or emlamb@mail.ifas.ufl.edu OR Ed Skvarch at (772)462-1660 or eask@mail.ifas.ufl.edu . For information on the program, see ext.wsu.edu/noas/index.html .

Urban Farming Workshop. Seminole County Extension Auditorium. Sanford, FL. April 12, 2003. Contact Richard Tyson at rvt@mail.ifas.ufl.edu

Florida Postharvest Horticulture Institute at FACTS. (Florida Agricultural Conference & Trade Show). Lakeland. April 29-30, 2003. Contact Steve Sargent at 352-392-1928 or sasa@mail.ifas.ufl.edu

Vegetable Field Day. GCREC-Bradenton. April 10, 2003. Contact Don Maynard at 941-751-7636 x239 or dnma@mail.ifas.ufl.edu

116th Florida State Horticultural Society. Sheraton World Resort Hotel International Drive - Orlando, June 8-10, 2003.

NORTHEAST FLORIDA PUMPKIN VARIETY EVALUATION REPORT, 2002

If high quality pumpkins could be produced with good yields, pumpkin production would be a good fit for North Florida for several reasons. First, the majority of pumpkins sold in Florida are imported from Northern states. Shipping from northern production areas to Florida markets increases product cost. Secondly, time in transport decreases shelf-life of the product once it arrives. Development of local production areas would reduce shipping costs and improve product quality. The Tri-County Agricultural Area (TCAA; Flagler, St. Johns, and Putnam counties) near Hastings, FL is a relatively short distance to the large population areas of Jacksonville, Orlando, and Tampa-St. Petersburg. The TCAA is an ideal location to supply pumpkins to regional markets. The objective of this trial was to identify and quantify the influence of northeast Florida climatic effects and production practices on the performance of pumpkin selections.

The pumpkin (*Cucurbita pepo, C. maxima, C. moschata*) variety evaluation trial was conducted at the University of Florida's Yelvington Farm in Hastings, FL in 2002. The experiment was arranged in a randomized complete block design with four blocks. Plots were 18 hills with two plants per hill. Spacing for hills of plants with vining-type architecture was 3 ft in-row and 160 inches between-row. Spacing for hills of plants with bush type architecture was 3 ft in-row and 80 inches between-row. Seed sources are listed on Tables 2-6. Seeds of many varieties are available from multiple sources.

The crop was grown on white plastic mulch using seepage irrigation. All fertilizer was incorporated under the mulch prior to planting. The fertilizer rate applied was 150-40-60 lb/acre ($N\text{-}P_2O_5\text{-}K_2O$). All nitrogen and 50% of the applied potassium was a controlled release fertilizer product programmed to release over approximately 90 days. The experiment was seeded on 15 July and harvested 30 September through 15 October. Season length was 77 to 92 days long. Pumpkins were counted, weighed, measured, and rated following the characteristics listed in Table 1. Pest control practices during the season followed IFAS recommendations. Because of the intense heat and plentiful rainfall during the season, a frequent (every 5-7 days) pesticide application schedule was maintained for disease and insect control.

Thirty-three pumpkin varieties were evaluated in 2002. The outstanding varieties (based on yield per class and fruit quality) in the miniature (Table 2), small (Table 3), medium jack-o-lantern (Table 4), large jack-o-lantern (Table 5), and specialty (Table 6) classes were Jack-B-Little, Spooktacular, Sorcerer, Magic Lantern, and Cinderella, respectively. Although pumpkin yields were not as high as those from northern production areas, the pumpkin variety evaluation program identified varieties that set fruit and grew relatively well in Florida's hot and humid summer weather. It is a continuous challenge to identify large jack-o-lantern types that produce large pumpkins (over 12 lb) in sufficient numbers under Florida growing conditions. Evaluation should continue to identify varieties with improved production and quality characteristics in each size class. Grower cooperators are being sought for on-farm trials in 2003.

Table 1. Description of pumpkin grading scores for sutures, color and overall appearance.

Score	Sutures	Color	Overall Appearance
1	Very Smooth	Yellow	Very poor
2	+-	+-	+-
3	Smooth	Light Orange	Poor
4	+-	+-	+-
5	Slightly Ribbed	Medium Orange	Fair
6	+-	+-	+-
7	Mod. Ribbed	Dark Orange	Good
8	+-	+-	+-
9	Deeply Ribbed	Reddish Orange	Excellent

Table 2. Production and quality characteristics for *miniature* pumpkins.

		Total	Mkt.	Marketable Fruit		Stem		Fruit Quality Characteristics					
		Yield	Yield	No.	Mean	Length	Width	Ht	Dia				Overall
Variety	Source	(tons/acre)		(acre)	Wt (lb)	(in)		(in)		Ht:Dia	Sutures	Color	App.
Baby Boo	Rupp	2.5	2.2	15,989	0.29	0.9	1.1	1.6	3.0	0.55	7-8	Off-white	7.0
Jack-Be-Little	Johnny's	4.1	3.8	27,770	0.26	1.5	1.0	1.8	2.9	0.63	7.8	4.7	6.8
Munchkin	Harris	3.6	3.3	22,572	0.29	1.3	1.0	1.8	3.0	0.61	7-8	6.0	7.3
Sweetie Pie	Stokes	2.1	1.9	10,791	0.33	0.9	1.3	1.6	3.0	0.53	7-8	4.5	6.7
LSD		0.5	0.5	4,108	0.04	0.2		0.1	0.1	0.11			
p-value		*0.0001*	*0.0001*	*0.0001*	*0.0203*	*0.0003*		*0.0010*	*0.0231*	*0.0261*			

Table 3. Production and quality characteristics for *small* pumpkins.

		Total	Mkt.	Marketable Fruit		Stem		Fruit Quality Characteristics					
		Yield	Yield	No.	Mean	Length	Width	Ht	Dia				Overall
Variety	Source	(tons/acre)		(acre)	Wt (lb)	(in)		(in)		Ht:Dia	Sutures	Color	App.
Hybrid Pam	Harris	6.3	6.2	4,158	2.86	3.5	4.6	4.9	5.7	0.86	4.6	4.9	6.4
Lil Ironsides	Harris	4.7	4.3	5,643	1.50	1.8	4.3	3.9	4.9	0.80	4.1	4.7	6.6
Orange Smoothie	Stokes	7.9	7.1	4,975	2.79	2.4	4.3	5.7	5.7	1.00	3.0	4.6	6.4
Oz	Harris	5.8	5.3	4,381	2.38	2.4	4.7	5.1	5.2	0.98	3.1	3.8	5.6
Pik-A-Pie	Rupp	5.4	4.9	4,232	2.29	3.7	5.0	4.9	5.4	0.91	4.5	4.5	6.3
Pro Gold 100	Abbott & Cobb	4.4	4.0	4,084	2.00	2.6	4.0	4.8	4.9	0.99	3.3	3.4	5.7
Small Sugar	Harris	4.0	3.1	2,673	2.29	2.5	4.2	4.6	5.2	0.88	4.6	4.5	5.7
Snackjack	Harris	3.2	2.9	3,861	1.50	2.5	3.7	4.8	4.4	1.08	3.4	3.5	5.1
Spooktacular	Harris	7.5	7.3	6,905	2.09	2.9	3.9	4.6	5.6	0.83	4.4	3.9	6.4
Touch of Autumn	Rupp	5.8	5.7	6,980	1.61	2.9	3.5	4.2	4.7	0.91	4.2	4.2	6.3
LSD		1.7	1.7	1,267	0.31	0.5		0.3	0.4	0.13			
p-value		*0.0001*	*0.0001*	*0.0001*	*0.0001*	*0.0001*		*0.0001*	*0.0001*	*0.0001*			

Table 4. Production and quality characteristics for *medium jack-o-lantern* pumpkins.

		Total	Mkt.	Marketable Fruit		Stem		Fruit Quality Characteristics					
		Yield	Yield	No.	Mean	Length	Width	Ht	Dia				Overall
Variety	Source	(tons/acre)		(acre)	Wt (lb)	(in)		(in)		Ht:Dia	Sutures	Color	App.
Howdy Doody	Rupp	7.5	6.7	2,302	5.94	3.4	6.7	7.0	7.4	0.96	3.8	4.1	5.3
Jack of all Trades	Stokes	8.0	7.2	2,747	5.28	2.4	5.6	7.5	7.1	1.05	3.5	3.8	5.8
Pro Gold 200	Abbott & Cobb	10.8	8.7	2,747	6.38	3.7	4.1	8.2	7.3	1.13	4.4	3.2	4.5
Pro Gold 300	Abbott & Cobb	8.2	5.2	1,262	8.36	2.9	4.5	9.5	8.7	1.10	4.3	3.6	5.3
Pro Gold 510	Abbott & Cobb	5.3	3.8	941	7.57	3.2	4.7	8.0	7.8	1.03	4.5	3.9	5.5
Racer	Johnny's	10.0	8.9	3,638	4.88	4.1	6.0	6.1	7.2	0.85	4.8	4.7	6.3
Rocket	Johnny's	9.5	7.8	2,277	6.82	3.9	3.9	8.1	7.4	1.10	4.5	3.9	5.4
Sorcerer	Harris	9.8	9.3	3,044	5.94	3.3	5.4	7.6	7.6	1.00	4.7	4.9	6.4
LSD		3.5	3.0	766	1.43	0.7		0.8	0.8	0.19			
p-value		*0.0280*	*0.0066*	*0.0001*	*0.0009*	*0.0007*		*0.0001*	*0.0045*	*0.0239*			

Table 5. Production and quality characteristics for *large jack-o-lantern* pumpkins.

		Total	Mkt.	Marketable Fruit		Stem		Fruit Quality Characteristics					
		Yield	Yield	No.	Mean	Length	Width	Ht	Dia				Overall
Variety	Source	(tons/acre)		(acre)	Wt (lb)	(in)		(in)		Ht:Dia	Sutures	Color	App.
Aspen	Rupp	9.3	7.8	2,599	5.98	2.2	4.9	8.0	7.2	1.11	3.7	3.8	5.5
Autumn Gold	Stokes	8.9	7.0	1,584	9.37	3.5	4.8	9.1	7.9	1.15	4.2	3.6	5.2
Gold Rush	Rupp	2.2	1.8	248	14.65	4.0	9.0	9.8	9.2	1.06	4.3	3.9	5.5
Howden	Harris	4.2	2.5	693	7.00	2.5	5.4	8.0	8.0	1.00	4.7	5.1	5.9
Howden Biggie	Harris	5.9	4.8	842	11.22	3.2	5.9	10.0	9.6	1.17	4.8	4.3	5.3
Magic Lantern	Harris	10.6	9.9	3,267	5.98	3.1	5.5	7.7	7.6	1.02	4.4	4.7	6.1
Rock Star	Johnny's	6.8	5.2	1,238	8.27	3.2	5.2	8.0	8.1	0.98	5.0	4.5	5.9
Trax Field	Rupp	6.6	4.8	990	9.77	3.5	4.6	8.7	8.9	0.97	4.7	3.9	5.8
LSD		2.6	2.6	624	2.79	1.1		1.1	0.8	0.18			
p-value		*0.0001*	*0.0001*	*0.0001*	*0.0003*	*0.0287*		*0.0008*	*0.0013*	*0.0381*			

Table 6. Production and quality characteristics for *specialty* pumpkins.

		Total	Mkt.	Marketable Fruit		Stem		Fruit Quality Characteristics					
		Yield	Yield	No.	Mean	Length	Width	Ht	Dia				Overall
Variety	Source	(tons/acre)		(acre)	Wt (lb)	(in)		(in)		Ht:Dia	Sutures	Color	App.
Cinderella	Johnny's	14.1	10.9	2,030	11.00	2.6	0.7	6.7	9.9	0.69	4.2	9.0	6.0
Long Island Cheese	Johnny's	9.2	7.6	2,327	6.60	2.3	0.9	5.5	8.6	0.65	5.5	light tan	6.2
Lumina	Harris	5.1	3.7	1,287	5.06	1.9	1.3	7.1	8.1	0.88	4.3	off white	6.4
LSD		1.8	2.8	ns	2.64	ns		0.9	1.1	0.12			
p-value		*0.0001*	*0.0024*	*0.2153*	*0.0036*	*0.2051*		*0.0112*	*0.0181*	*0.0028*			

(Hutchinson, Doug Gergela, bio. sci.- Vegetarian 03-03)

HOW CAN YOU REDUCE FLOODING DAMAGE OF VEGETABLE CROPS?

Several management practices have been reported to help crops partially or entirely to overcome flooding damage. The application of nitrogen (N) fertilizers overcomes N deficiency while the natural or synthetic hormones are used to correct hormone imbalances, and the addition of fungicides are for controlling soil-borne pathogens. We recently conducted a flooding experiment with bush been, cowpea, and sweet corn. This article recommends you some practices to alleviate flooding damage to of vegetables.

Nitrogen fertilizers effectively enhance crop recovery:

Flooding causes a significant decrease in N content and rate of N accumulation in plants because of reduced root activity. Plant available soil N in soils is also very low because of leaching or runoff. Leaf yellowing due to chlorophyll loss occurring within two to three days of waterlogging is attributed to N deficiency. Thus, a strategic use of N fertilizer after flooding may alleviate N deficiency and enhance crop recovery from flooding. Growers should apply fertilizers as soon as soils dry enough for tractor operation. Foliar application of liquid fertilizers is more effective than broadcasting dry fertilizer because of root damage due to flooding. Many kinds of N fertilizers can be used for crops after flooding. Recently we tested several fertilizers and found: potassium nitrate > urea > calcium nitrate. Please see table 1 for application information. A regular granular dry fertilizer such as $10N\text{-}10P_2O_5\text{-}10K_2O$ also can be used for flooded crops, but it is not as effective as foliar or liquid fertilizers.

Growth regulators have little effect on crop recovery:

Various plant growth regulators have been associated with alleviation of waterlogging damages, but there is a void in the information available on their effects on waterlogged crops. Spraying shoots with a synthetic cytokinin (6-benzylaminopurine [BAP]) has been reported to reduce flooding damage by improvements in leaf extension and retarded premature loss of chlorophyll in older leaves. This was related to application of BAP compensating for the restricted transport of natural cytokinin from the root system, affecting metabolism of gibberellins, and adversely affecting the inhibitory action of abscisic acid on growth. However, our recent study with six growth regulators showed no effects on crops (sweet corn and cowpea) recovery from flooding (Table 1). Some growth regulators even inhibited crop recovery by affecting photosynthesis and evapotranspiration.

Fungicides may not affect crop recovery:

Flooding increases the severity of diseases. The symptoms of diseased roots are discoloration, rotting of the root, and the premature death of the plant. The damage reduces the ability of the root systems to obtain mineral nutrients or perform other functions essential to the shoot. Two common diseases, Phytophthora and Pythium cause greatest damage to roots in poorly drained soil. Application of fungicides probably reduces the incidence of disease in waterlogged plants and thereby increases plant tolerance to flooding. However, we tested two fungicides (Ridomil and Bravo 720) in our flooding experiment (Table 2). Both chemicals had no significant effect on plant growth.

Table 1. Nitrogen fertilizer application information.

Fertilizer	Formula	N%	Application Rate	
			lb/100 gal	gal/ac
Potassium nitrate	KNO_3	13	15	50-100
Urea	$CO(NH_2)_2$	46	9	50-100
Calcium nitrate	$Ca(NO_3)_2$	12	35	50-100

Table 2. Growth regulators and fungicides were tested for sweet corn and cowpea.

Chemical	Type	Rate
Progibb	Growth regulator	50 ppm
6-Benzylaminopurine	Synthetic cytokinin	10 ppm
Trigger	Synthetic cytokinin	8 oz /100 gal
Auxigrow	Growth regulator	4 oz/gal
Fulvic acid	Growth regulator	1 quart/100 gal
Ethaphon	Growth regulator	100 ppm
Ridomil	Fungicide	16 oz/100 gal
Bravo 720	Fungicide	1 quart/100 gal

(Li and Renuka Rao - Vegetarian 03-03)

THE WATERMELON TRANSPLANT SCENE IN 2003

The prophecy has taken some 20 years in coming, but Florida watermelon growers have finally completely embraced the seedless market! A recent poll of the major transplant production houses in Florida has revealed that fully 80 – 100% of the seed being sown for the spring crop is from seedless varieties. Due to the high cost of seedless watermelon seed this crop is strictly grown as a transplant and based on 2001 production figures, 26,000 acres of watermelons were grown in Florida so that’s 28.6 million transplants!

Most transplant growers agree that improved seed quality has greatly contributed to the transition from seed producing to seedless melon production over the past few years. Seed quality and experience in growing a product that cannot be treated like all the other transplants one commonly grows. While production managers were generally unwilling to divulge their *tricks of the trade*, the proper timing and amount of heat and moisture were consistently mentioned in discussions of successful germination and even stands.

Tri-X 313 (American Sun Melon) is still the dominant seedless variety, but names like Genesis (Shamrock), Millionaire (Harris-Moran), Palomar (Rogers) and Premier (Southwest Seed) surfaced as contenders. Seedless watermelon transplants are typically raised in 128-cell trays. This results in a more compact plant than when grown in the standard 242-cell tray used for other crops. When set in the field the Florida watermelon transplant has two leaves and is 28 – 35 days old.

Several seed companies are offering a short-vined, non-marketable pollinator this year that allows the grower to plant his/her entire acreage to seedless melons thus increasing yield while reducing the actual acreage under plastic. The new pollinator demands very little space and when planted between the seedless plants produces a non-marketable melon that is simply left in the field, which increases harvesting and marketing efficiency (i.e., no seeded melons to get rid of!). These short-vined pollinators must also be grown as transplants and must be seeded in separate flats just like the pollinators of the past. Research is still on going with these short-vined pollinators, so stay tuned for further information.

For those holdouts that grow watermelons with seeds or interplant their seedless with seeded melons, Rogers Seed (Syngenta) seems to provide most of the varieties. Transplant production managers mentioned Fiesta, Mardi Gras and Sangria as the dominant seeded watermelon varieties in Florida.

The majority of Florida's watermelon transplant crop is used in-state, though Florida grown watermelon transplants are also shipped throughout the southeastern United States to meet the 4th of July demand. And while spring is still the major production season, some production houses indicated that they have watermelons in the house nine months of the year, not only to supply markets up the entire east coast but the newly emerging Florida fall market as well.

Finally, now that one prophecy has been fulfilled the industry is keen to move on to the next level, so be on the look out for the up and coming personal sized melon. Yes, a single serving, fit in your palm, seedless watermelon that's consumed in one sitting! While most vegetable breeders are striving for bigger fruit and higher yields it seems watermelon breeders are opting for less waste and more flavor … hmmmmm, maybe they're on to something!

For more information on growing transplants or how to contact Florida transplant production houses, contact your local County Extension agent or log on to http://www.imok.ufl.edu/veghort/trans/index.htm

(Vavrina - Vegetarian 03-03)

Extension Vegetable Crops Specialists

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Chad Hutchinson Assistant Professor, vegetable production	**Eric Simonne** Assistant Professor ***and editor***, vegetable nutrition
Elizabeth M. Lamb Assistant Professor, production	**William M. Stall** Professor, weed control
Yuncong Li Assistant Professor, soils	**James M. Stephens** (retired) Professor, vegetable gardening
Donald N. Maynard Professor, varieties	**Charles S. Vavrina** Professor, transplants
Stephen M. Olson Professor, small farms	**James M. White** Associate Professor, organic farming
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