

# Vegetarian Newsletter

A Horticultural Sciences Department Extension Publication on Vegetable Crops

Eat your Veggies!!!!

Issue No. 549 September 2009

## IS HYDROPONICS READY FOR SOLAR?

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The environmental impact of producing food can be reduced by incorporating green / clean technologies into production inputs. Powering equipment using solar energy in Florida – “The Sunshine State” – has considerable potential. A prototype solar powered hydroponic system developed for the statewide Small Farm Conference 2009 <http://smallfarms.ifas.ufl.edu/floridasmallfarmsconference/index.htm> (Fig. 1A) could be expanded to a larger version and evaluated for use by small farmers, market gardeners, or for home use by master gardeners.

The system consists of a bench bed (aluminum roof panel) nutrient flow technique re-circulating tank culture hydroponic system with a continuous duty marine bilge pump in the nutrient tank direct connected to a Kyocera 40 watt solar PV module (Fig. 1B) [www.realgoods.com](http://www.realgoods.com). A ballast resistor is attached to the positive (red) wire to moderate electron flow during peak sunlight hours. The system runs continuously when the sun shines on the solar panel and shuts off during cloudy days or at night. A capillary mat keeps the plant roots moist when the pump is off. The pump lifts the nutrient solution to the high side of the bench bed where it gravity flows back to the tank.

Lettuce and herb transplants were placed through slits in a silver mulch cover and their roots allowed to sit on the capillary mat with foliage above the plastic mulch cover. The system is well adapted to small rooted, short season crops that thrive under high moisture conditions. Lettuces, basil, mint, and stevia performed especially well.



**A**



**B**

Figure 1. Prototype solar hydroponic system for lettuces and herbs.  
[Photo credits - Tyler Jones, UF/IFAS]

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## **Sweet Onion Variety Trial, North Florida Research and Education Center, Quincy, Florida - Spring 2009**

**By: Stephen Olson, Professor  
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Now is the time to start thinking about planting sweet (short-day) onions. Sweet onions are a relatively minor crop in Florida. Production exists as both dry bulbs (mature) and green tops (immature). Limited production exists throughout the state. The biggest deterrent for increased production is from competition from established markets in south Texas and middle Georgia (Vidalia) areas. However, the potential exists for expanding production, especially in the areas of local sales and direct marketing.

The objective of this trial was to evaluate the performance of sweet onion varieties under northwest Florida conditions.

The transplants for this trial were produced from field beds at the North Florida Research and Education Center, Quincy. Twenty one varieties were seeded on 6 Nov 2008. Two of the varieties ('Red Rhone' and 'Red Flavor') were red onions. Seed were planted at rate of about 30 seed per ft into rows spaced 12 inches apart. Preplant fertilization of seedbeds was 30-40-40 lbs/A of N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O. Dacthal W 75 was applied over the top at 10 lb/A after seeding. Seedbeds were top dressed once with 34 lbs N/A. Entries were transplanted into the production field on 7 Jan 2009. Soil type was an Orangeburg loamy fine sand. Total fertilization was 160-80-140 lbs/A of N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O. Production scheme was 3 rows spaced 15 inches apart under a 6 ft tractor and in-row spacing was 4 inches (65,340 plants/A). Goal 2XL at 2 pts/A was applied on soil surface before transplanting. Registered pesticides were applied as needed to control pests.

Entries were harvested as they matured, where maturity is defined as when about 50% or more of the tops of an entry had fallen down naturally. Bulbs were lifted, allowed to dry for a few hours and tops and roots removed. Bulbs were then placed in bushel baskets and dried for 72 hours at 100° F in large drying rooms. After drying time was complete, onions were removed, allowed to cool down and graded. Grading consisted of discarding culls (small onions, splits, off color and decayed) and sizing into medium (1.5-2 inches), large (2-3 inches) and jumbo (>3 inches) categories. Bulbs were then weighed and counted.

Harvest occurred from the period of 28 April to 28 May. Total yields ranged from 989 50-lb bags/A for 'WI-3115' to 201 50-lb bags/A for 'Red Rhone' (Table 1). Only 'WI-131' produced total yield equal to 'WI-3115'. Yields were good to excellent in 2009 and growing conditions were good. 'XON 403 Y' produced the largest bulb at 14.5 oz and 'Carmelo' produced the smallest at 7.4 oz. Percent marketable bulbs ranged from a low of 36 % for 'Red Rhone' to a high of 99 % for 'Honey Bee'. Days to harvest from transplanting ranged from 111 days for 'WI-301' and 'Honeybee' to 141 days for 'Red Flavor', and 'Red Rhone'.

Table 1. Onion Variety Trial Spring 2009 - North Florida Research and Education Center, Quincy.

Entry	Source <sup>Z</sup>	Marketable Yield (50 lb sacks/A)		Marketable (%)	Bulb Wt. (oz)	Day to Harvest
		Jumbo	Total			
WI-3115	Wannamaker	945a <sup>Y</sup>	989 a	96.5 ab	13.8 ab	114
WI-131	Wannamaker	815 ab	871 ab	94.8 ab	12.1 a-f	114
Sweet Harvest	Sakata	733 b-c	796 bc	94.0 a-c	11.4 a-f	118
XON 403Y	Sakata	768 a-c	784 b-d	74.8 ef	14.5 a	133
Sweet Deal	Shamrock	706 b-d	761 b-e	96.8 ab	10.7 b-g	117
Sugar Belle	Shamrock	723 b-d	761 b-e	80.3 c-f	12.3 a-d	121
Sweet Vidalia	Nunhems	696 b-d	747 b-f	92.8 a-c	10.9 b-g	128
WI-301	Wannamaker	666 b-e	746 b-f	92.3 ab	10.4 b-g	111
Sweet Caroline	Nunhems	692 b-d	742 b-f	91.5 a-d	10.8 b-g	128
SSC 1535	Shamrock	683 b-d	731 b-f	92.3 ab	10.4 b-g	114
Honeycomb	Shamrock	619 c-f	681 c-g	78.8 d-f	10.3 b-g	118
Sweet Jasper	Sakata	627 b-e	650 c-h	78.5 d-f	11.6 a-f	133
Honey Bee	Shamrock	548 d-g	643 c-h	99 a	9.1 c-f	111
Ponderosa	Sakata	579 c-f	600 d-i	66.8 f	12.2 a-e	134
Gobi	Nunhems	456 e-h	596 e-i	96.8 ab	8.8 d-g	128
Don Victor	Nunhems	428 f-h	568 f-i	91.5 a-d	9.2 c-g	128
Caramelo	Nunhems	383 gh	509 g-j	96.8 ab	7.4 g	118
Kalahari	Nunhems	374 gh	472 h-j	72.8 ef	9.4 c-g	135
Prowler	Nunhems	338 hi	440 ij	83.8 b-e	8.4 fg	135
Red Flavor	Wannamaker	315 hi	356 jk	51.0 g	12.7 a-c	141
Red Rhone	Wannamaker	159 i	201 k	36.0 h	8.6 e-g	141

<sup>Z</sup> Source: Wannamaker Seeds, St. Matthews, SC ([www.wannamakerseeds.com](http://www.wannamakerseeds.com)), Sakata Seed America, Morgan Hill, CA ([www.sakata.com](http://www.sakata.com)), Shamrock Seed Co., Salinas, CA ([www.shamrockseed.com](http://www.shamrockseed.com)), and Nunhems USA, Inc., Parma, ID ([www.nunhemsusa.com](http://www.nunhemsusa.com)).

<sup>Y</sup> Mean separation Duncan's multiple range test, 5% level.

