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Comparison of Six Soilless Media in a Vertical Production System (Verti-Gro™) for Basil 99-05

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Material and Methods

The vertical production system, Verti-Gro™, is an excellent system to grow many herbs and specialty leafy green vegetables. The system uses a tower of interlocking stackable pots. The styrofoam pots have drainage holes and are filled with soilless media. Standard hydroponic nutrient solutions and irrigation systems are used. Each tower is supplied with emitters in the top pot and additional emitters half-way down the tower, if needed. Nutrient solution is collected in a drainage pan under the bottom pot. This solution can be recirculated, but in this trial the excess nutrient solution was not recirculated.

Six soilless media and media combinations were used in this trial. One tower each was filled with one of the various media treatments (Table 1). Basil, cultivar 'Genovese compact', was planted to each tower on August 17, 1998. Each tower had eight pots and four plants were planted in each pot resulting in 32 plants per tower.

All towers were fertigated on the same schedule with several fertigations per day depending on crop demand. Irrigation scheduling was set to assure leaching after each irrigation. Leaching rates were generally 10-25%. Irrigation events ranged from 2 to 6 times daily as growth increased. The University of Florida hydroponic fertilizer recommendations for tomato (Hochmuth, 1990) was used for the basil crop as a guideline. A nitrogen level of 150-160 ppm N was adequate for excellent growth. The only change made from the published tomato recommendation was an increase in magnesium from 40 to 80 ppm Mg to eliminate magnesium deficiency symptoms seen early in the cropping season. Basil was harvested from each tower eight times from September 24, 1998 to January 11, 1999.

Results and Observations

The Verti-Gro™ production system generally worked well for the production of fresh-cut basil. All soilless media and combinations performed well for the production of basil. Only minor differences were observed in the crop from one media to another.

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The tower with perlite and coconut coir (25:75) had somewhat poorer color on plants in the bottom pots only. This perhaps was due to wetter conditions in those lower pots. However, yields were very similar across each media treatment with about seven ounces per plant produced over a period of about 15 weeks of harvest. It appears any of the media or media combinations used in this study would be excellent for production of basil in the Verti-Gro™ production systems.

Table 1 Yield of 'Genovese Compact' basil in various soilless media and media combinations when grown in the Verti-Gro™ system.

Media	Media Volume Ratio (% : %)	Yield (oz/plant)
Perlite	100	6.8
Perlite & Vermiculite	85:15	7.4
Perlite & Coconut Coir	75:25	7.3
Perlite & Coconut Coir	50:50	7.4
Perlite & Coconut Coir	25:75	7.8
Scotts Metro Mix™ (366-P)	100	7.4

References

Hochmuth, George. 1990. Nutrient Solution Formulation for Hydroponic (Rockwool ad NFT) Tomatoes in Florida. University of Florida Cooperative Extension Services SVREC-44. 17pp.