

Result Demonstration Report

UTILIZATION OF DIFFERENT SOILESS MEDIA MIXES IN CONTAINER ORNAMENTALS

Dr. Mario A. Villarino, County Extension Agent- Hopkins
Peter Kuriakose, Odessey Farms, Brashear Texas- Cooperator
Joey Baxter, Organic Resource Company, Sulphur Springs, Texas- Cooperator
Mark Maxwell, City Manager, City of Sulphur Springs- Cooperator

Summary: During this result demonstration, five different soiless media mixes were tested for plant development (flowering) using vessel composted bio-solids as part of the soiless media components. Currently, the City of Sulphur Springs is using vessel composting (Organic Resource Company) technology to remove non soluble components from the water treatment plant that service the city. The composted product, denominated as bio-solids meet the most stringent standards spelled out in the federal and state rules and are approved for use as a fertilizer. Because nurseries depend on imported components (peat moss) to prepare soiless media for plant development, the use of bio-solids as peat moss/fertilizer substitute can be of both economic and environmental benefit for the region if the bio-solid mixes perform correctly.

Objective: To demonstrate the effect of use of vessel composted bio-solids as a component of soiless media in three major ornamental plants: Vinca (*Vinca mayor*), Lantana (*Lantana Spp*) and Sweet potatoes (*Ipomoea batatas*) in containers.

Materials and Methods: Plant Material: Five hundred germinated plugs (in 98 count plastic trays containers) from *Vinca* (several colors) and *Lantana* were used during this demonstration. Five hundred rooted cuttings of sweet potatoes (in 98 count plastic trays) were included as control. Five media mixes with different bio-solid inclusion rates (Mixes A-E) (Table 1) were used as plant growing media. Peat moss was used as bio-solid substitute to balance the mix ratios. The plants were transferred from plugs into 18 count flats for further development. The trays were hand watered during 4 weeks and flowering counts were conducted at the end of the trial.

Results and Discussion: All soiless media mixes were able to support plant life until the end of the demonstration (4 weeks). A statistically significant difference ($\alpha=0.001$) in flowering of *Vinca* replicates was found in mixes D&E (25% and 50% bio-solid inclusion). All *Lantana* replicates flowered. All sweet potatoes replicate showed growth during this result demonstration. This result demonstration was conducted during the warmer season of the year June-July 2014. The higher response to flowering in *Vinca* replicates can be attributed to better water retention of the soiless media since the higher flowering replicates were those with higher peat moss inclusion in the soiless media mixes.

Table 1: Soilless media composition of the different mixes used during this demonstration.

	Bio-solids (%)	Hard Wood (%)	Peat Moss (%)	Cost per gallon (\$)
Mix A	50	50	0	0.044
Mix B	25	75	0	0.044
Mix C	50	25	25	0.084
Mix D	25	50	25	0.080
Mix E	50	0	50	0.124

Conclusions: Bio-solids can be utilized as potential fertilizer additives in soilless media for ornamental plants in containers. Water retention is however, an important characteristic needed in container plant production and plays a very significant role in flowering in *Vinca* crops. Less water sensitive crops (i.e. *Lantana*) in the other hand can tolerate higher inclusion rates of bio-solids in their growing media without significant effect in flower production.



Experimental set up and interpretation:

Left: Plastic containers distribution during the demonstration after planting.

Right: Result interpretation during the 2015 Kid Camp session with youth (25 participants) and Hopkins County Master Gardeners.

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