



Potential Pot Re-Design for Nursery Soil Reduction

Wayne J. McLaurin
Department of Horticulture - Athens
The University of Georgia

Nature of Work: Each year Georgia nurseries use an ever increasing amount of special soil mixes. These soil mixes are a major cost factor in nursery production. However, many shrubs, perennials, and other plants are utilizing less than the full amount of soil in their containers by the time of sale. This study is a follow-up to a previous study that found no significant differences in growth when shrubs were grown with 37-39% less soil in the containers.

Study Design: The objective of this study was to determine by maintaining container size, but altering container soil volume, if soil amounts may be reduced without adversely affecting plant growth and development. Standard 3 gallon pots were used with a mum pot (sometimes called a dish) inverted in the 3 gallon pot. According to preliminary calculations, this insertion reduced the amount of soil in the container by approximately 35-40%.

Two treatments were used:

- 1 - Standard 3 gallon pot with a mum pot inverted inside.
- 2 - Standard 3 gallon pot

Five ornamental species were used:

- Ilex* X 'Nellie R. Stephens'
- Osmanthus fragrans*
- Rhododendron azalea* X 'Pleasant White' (Girard evergreen hybrid)
- Loropetalum chinense* var. *rubrum* 'Sizzling Pink'

Liners were planted on April 9 and harvested on November 25 for a growing period of 229 days. This extended time period provided for maximum, root growth to develop within the pot.

Evaluation: In this study there was significantly more top dry weight (TDW) in the standard pot than in the reduced soil pot for *Osmanthus fragrans* and *Rhododendron azalea* X 'Pleasant White' (Girard evergreen hybrid). However, there was no difference in TDW growth of *Ilex* X 'Nellie R. Stephens' holly and *Loropetalum chinense* var. *rubrum* 'Sizzling Pink' due to treatments.

In the containers the plant roots for all species were found to grow evenly around the inverted mum pot and were not compacted in a ball as may happen in a conventional pot.

Significance to the Industry: The significance of this study to the industry is the potential of savings in quantity of the soil mixes for some species. Each plant has a root system ready for planting when it is taken from the pot without having to cut into it for spreading.

Table 1. Top Dry Weights (TDW) of Three Gallon <i>Ilex X 'Nellie R. Stephens'</i>		
Treatment	Mean Dry Weight(g)	Non-Significant Range
Reduced soil pot	142.9	a
Standard pot	151.9	a

There was no difference in TDW growth of *Ilex X 'Nellie R. Stephens'* holly due to treatments.

Table 2. Top Dry Weights of Three Gallon <i>Osmanthus fragrans</i>		
Treatment	Mean Dry Weight(g)	Non-Significant Range
Reduced soil pot	87.3	a
Standard pot	116.4	b

There was significantly more TDW in the standard pot than in the reduced soil pot for *Osmanthus fragrans*.

Table 3. Top Dry Weights of Three Gallon <i>Rhododendron azalea X 'Pleasant White'</i> (Girard evergreen hybrid)		
Treatment	Mean Dry Weight(g)	Non-Significant Range
Reduced soil pot	103.8	a
Standard pot	121.4	b

There was significantly more TDW in the standard pot than in the reduced soil pot for *Rhododendron azalea X 'Pleasant White'* (Girard evergreen hybrid) .

Table 4. Top Dry Weights of Three Gallon <i>Loropetalum chinense</i> var. <i>rubrum</i> 'Sizzling Pink'		
Treatment	Mean Dry Weight(g)	Non-Significant Range
Reduced soil pot	153.9	a
Standard pot	164.8	a

There was no difference in TDW growth of *Loropetalum chinense* var. *rubrum* 'Sizzling Pink' due to treatments.