Evaluation of A Nursery Soil Mix Containing Municipal Bio-Solids Compost (MBSC) on the Growth of Perennials and Woody Ornamentals

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

Background:

In the plant industry the use of new, high analysis fertilizers containing inorganic, slow-release materials are standard. However, with growing concern about environmental effects of inorganic fertilizer run-off, there is increased interest in the use of organic fertilizers, particularly as these fertilizers are often "slow-release" and benefit growing plants over time. These organic materials are readily available and may afford a readily useable alternative to high-cost commercial fertilizers, as well as a market advantage to some consumers.

The fertilizer used in this study came from the city of Douglas, GA. It is composed of ground wood material and bio-solids (MBSC) which have been composted.

Purpose of Study:

To determine if a municipal bio-solids compost can replace some conventional fertilizers and perform effectively as part of a conventional nursery mix.

Design of Study:

This experiment was set up as in a completely randomized block design using four replications of six plants per treatment. One-gallon containers were used for the study.

Three soil mixes were used in this study.

> 1 - Standard McCorkle's mix
> 2 - Standard McCorkle's mix plus 15% MBSC
> 3 - Standard McCorkle's mix plus 30% MBSC

Six ornamentals were planted in each replication–four herbaceous and two woodys.

> *Agastache* 'Blue Fortune'
> *Coreopsis grandiflora* 'Sunray'
> *Gaura* 'Corey's Gold'
> *Hibiscus moscheuto* 'Disco Belle Pink'
> *Azalea Kurume* 'Pink Pearl'
> *Loropetalum* 'Sizzling Pink'

Evaluation: The 15% MSBC *Gaura* 'Corey's Gold' (Table 3) treatment produced significantly greater TDW (top dry weight) than the SM (standard mix). Also, there was no significant difference in the TDW of the SM and the 30% MBSC treatment for the *Loropetalum* 'Sizzling Pink' (Table 6). All other treatments were not significant from the SM.

Significance to the Industry: The results of this experiment indicates that MSBC may have at least limited potential for growing potted crops in the nursery industry.

Table 1. *Agastache* 'Blue Fortune' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	32.7	A
30% Douglas Bio-Compost	33.4	A
Standard Mix	31.8	A

*Numbers within columns followed by the same letter are not statistically different based upon Tukey's HSD means separation test and P=0.05

Table 2. *Coreopsis grandiflora* 'Sunray' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	54.4	A
30% Douglas Bio-Compost	49.1	A
Standard Mix	38.9	A

*Numbers within columns followed by the same letter are not statistically different based upon Tukey's HSD means separation test and P=0.05

Table 3. *Gaura* 'Corey's Gold' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	26.3	A
30% Douglas Bio-Compost	21.2	B
Standard Mix	18.6	B

Table 4. *Hibiscus moscheuto* 'Disco Belle Pink' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	15.0	A
30% Douglas Bio-Compost	15.9	A
Standard Mix	12.2	A

*Numbers within columns followed by the same letter are not statistically different based upon Tukey's HSD means separation test and P=0.05

Table 5. *Azalea Kurume* 'Pink Pearl' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	19.7	A
30% Douglas Bio-Compost	23.4	A
Standard Mix	22.9	A

*Numbers within columns followed by the same letter are not statistically different based upon Tukey's HSD means separation test and P=0.05

Table 6. *Loropetalum* 'Sizzling Pink' Top Dry Weight

Treatment	Mean Dry Weights(g)	Non-Significant Range*
15% Douglas Bio-Compost	42.4	B
30% Douglas Bio-Compost	53.2	AB
Standard Mix	55.4	A

*Numbers within columns followed by the same letter are not statistically different based upon Tukey's HSD means separation test and P=0.05