



# Performance of Thoroughbred Compost as an Addition to Growing Media for the Production of Garden Mums

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## Background

Thoroughbred Compost in Lexington KY (<http://www.thoroughbredcompost.com/>) processes and reduces the amount of waste horse muck from horse farms in the Lexington area. This company has a first class facility and composts the horse muck (10-20% manure and 80-90% straw) according to modern standards for organic composts. The primary use of their product is for soil improvement in landscapes and mine reclamation. They are interested in the performance of this product as potting soil or growing media in commercial greenhouses and nurseries.

In March 2003, Tom Creech of Thoroughbred Compost sponsored a daylong educational session about composts and his compost. Many operators of landscape businesses attended as well as a few greenhouse operators. Because of grower and the company's interest, trials were initiated to use the compost for garden mums and vegetable transplants to get an idea of the products performance.

## Materials and Methods

Pinched, garden mums ('Legend' and 'Helen') were obtained from Red Barn Nursery, Nicholasville KY, in late June. The cuttings, 10 plants per treatment, were transplanted into a mixture of 0, 10, 20 or 30% Thoroughbred Compost and Scott's MetroMix 560. An additional treatment used approximately 50% of the compost in the bottom of the mum pot and 50% MetroMix 560 in the top of the pot. Fifty plants were fertilized with approximately 150 ppm Peters 20-10-20 once per day and clear water once per day with drip irrigation outdoors. Fifty additional plants were fertilized twice per day with Monty's Joy Juice at the label rate. A visual rating was obtained when plants were in flower and at a salable stage on August 25, 2003. Growing media were collected from five plants in each treatment on the same day. The media was consolidated into a single sample and submitted to UK Regulatory Services for the standard greenhouse growing media soil test.



## Results and Discussion

There were no discernable differences in plant performance in the different mixtures of compost and commercial growing medium (Figure 1). The impact of the compost on plant growth

was unknown at the start of the experiment, thus plants were not fertilized heavily at the beginning to get rapid plant growth. For this reason, plant size was moderate (not a 5 rating); however, plants were salable, especially for a supermarket or box store market. Plants in the 30% and 50% treatments were quite yellow for the first 2-3 weeks.

As expected, the raw compost has characteristics that are outside of the normal range for growing media (Table 1). In general, the salts are very high, above 8 mS, approximately 5 times the preferred range. The pH is also high, above 8.0 and potassium is over 3000 ppm, the main contributor to the high salts. These very high numbers were reduced significantly over just eight weeks of outdoor plant production with drip irrigation and natural rainfall. The electrical conductivity and nitrate nitrogen levels dropped dramatically during the eight weeks that the garden mums were grown (Table 1). Growing medium pH and concentrations of phosphorus, potassium, calcium and magnesium were near recommended levels when plants were harvested in late August.

The high initial pH, conductivity and potassium levels indicated that the compost might not be a good addition to growing media for plant production. However, garden mum production was quite successful. Plants had very good root systems at the end of the experiment. In addition, plants seemed to stay uniformly moist. It was clear that plants had to be fertilized normally if the compost was used. The biggest disadvantage for the compost was the brown/black ooze that came out of the pots after watering, primarily at the 30% and 50% rates. This disappeared with eight weeks of summer rain and drip irrigation.

Thoroughbred Compost is less expensive than many commercial growing media, so growers that wish to try this product may evaluate it in their own production system.

Figure 1. Performance of two cultivars of garden mums in mixtures of compost and a commercial growing medium.

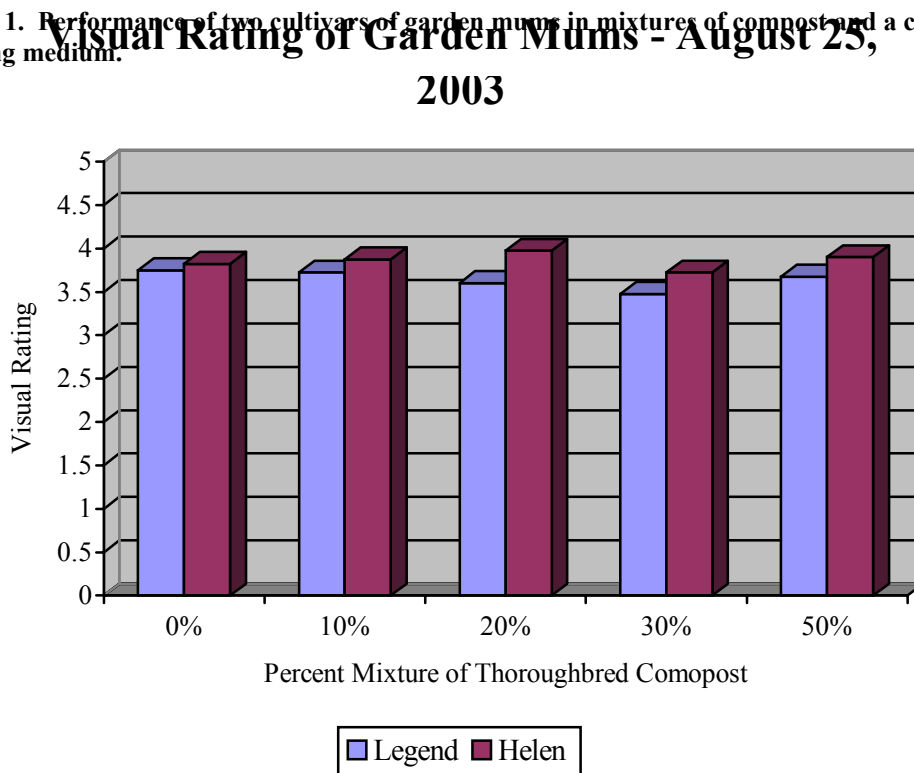


Table 1. Nutritional characteristics, determined by a greenhouse soil test, of Thoroughbred Compost at the start of the garden mum production experiment and of compost mixtures after eight weeks of garden mum growth.

|  | Percent of Thoroughbred Compost Added to MetroMix 560 |      |       |       |       |
|--|---|------|-------|-------|-------|
|  | 0%  | 10%  | 20%   | 30%   | 50%   |
| <b>pH (initial 8.21)</b>                           |   |      |       |       |       |
| Peter's  | 5.79  | 6.44 | 6.64  | 6.81  | 6.92  |
| Monty's  | 6.1   | 6.31 | 6.42  | 7.26  | 6.65  |
| <b>Electrical Conductivity – mS (initial 8.54)</b> |   |      |       |       |       |
| Peter's  | 0.7   | 0.7  | 0.9   | 1.7   | 0.7   |
| Monty's  | 0.5   | 0.9  | 2.1   | 1.0   | 0.9   |
| <b>Nitrate nitrogen – ppm (initial 134.9)</b>      |   |      |       |       |       |
| Peter's  | 5.5   | 2.5  | 4.8   | 3.3   | 14.7  |
| Monty's  | 2.7   | 2.4  | 2.8   | 6.9   | 4.8   |
| <b>Phosphorus – ppm (initial 64.8)</b>             |   |      |       |       |       |
| Peter's  | 2.8   | 20.1 | 25.1  | 22.3  | 18.4  |
| Monty's  | 14.4  | 42.5 | 55.4  | 29.5  | 31.9  |
| <b>Potassium – ppm (initial 3476.)</b>             |   |      |       |       |       |
| Peter's  | 7.6   | 48.7 | 97.5  | 340.1 | 362.0 |
| Monty's  | 5.6   | 74.0 | 356.5 | 290.6 | 436.0 |
| <b>Calcium – ppm (initial 118.0)</b>               |   |      |       |       |       |
| Peter's  | 88.1  | 56.5 | 64.6  | 73.3  | 69.8  |
| Monty's  | 51.9  | 86.7 | 147.1 | 79.8  | 92.3  |
| <b>Magnesium – ppm (initial 54.7)</b>              |   |      |       |       |       |
| Peter's  | 53.7  | 32.5 | 34.0  | 40.5  | 35.9  |
| Monty's  | 29.6  | 45.5 | 75.6  | 59.4  | 52.5  |

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