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Effects of Organic Waste Substrates on the Growth of Impatiens

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**Abstract:** The use of peat and peat substitute organic wastes as substrates for container-grown flowers was studied. Peat, hazelnut husk, and maize straw were considered as support materials and MSWC (municipal solid waste compost) and poultry manure as fertilizer supplements. Eight substrates were prepared by combining each additive with peat, hazelnut husk, and maize straw. Hazelnut husk and maize straw substitution by 50% and compost and poultry manure addition by 25% in peat exhibited acceptable physical and chemical properties that are important for container substrates. Nitrogen provided by the compost and poultry manure influenced plant growth and flowering. The lowest rate of plant growth was obtained with commercial peat, while the highest was obtained with peat+maize straw+poultry manure. The presence of compost in the substrate produced fewer flowers per plant even though the plants had a similar vegetative frame, and fresh and dry mass. Higher electrical conductivity (EC) of the substrate and lower nitrogen content in peat+MSWC and peat+hazelnut husk+MSWC reduced the number of flowers per plant more than the control did. On the other hand, plants in commercial peat flowered abundantly at the beginning of season, while plants in the substrate with MSWC and poultry manure added flowered 1 or 2 weeks later and had a longer abundant flowering period. Our results suggest that it is possible to use organic materials, such as those we tested, as an alternative growing media component to peat.

**Key Words:** Organic waste container substrate, municipal solid waste compost, poultry manure, impatiens

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