

Composted dairy manure in foliage plant production

September 8 2009



Researchers show off dumb cane plants grown in cowpeat at the MREC shadehouse. Credit: Photo by Qiansheng Li

Peat has been a major component of substrates used in container plant production since the 1960s. Highly porous with the capacity to hold water, peat makes an ideal rooting and growing medium for potted plants. But harvesting peat (and draining valuable peatlands in the process) releases the carbon stored in peat into the atmosphere as carbon dioxide. And because peat plays an important role in wetland ecosystems—peat bogs improve groundwater quality and are unique habitats for wild plants and animals—the use of peat has been challenged and peat mining is increasingly regulated.

Researchers have worked for years to find alternative organic materials that can be used as partial or complete substitutes for peat. Composted

biosolids, municipal solid waste, and yard trimmings have all been investigated as possible components for use in bedding, landscape and foliage plant production. Now, composted dairy manure is being tested as an economical and environmentally sound alternative to peat.

Scientists Qiansheng Li, Jianjun Chen, Russell D. Caldwell, and Min Deng from the Department of Environmental Horticulture and Mid-Florida Research and Education Center (MREC) at the University of Florida's Institute of Food and Agricultural Sciences, published a research report in [HortTechnology](#) that evaluated the potential for using cowpeat, a composted dairy manure, as a component of container substrates for foliage plant propagation.

For the study, a commercial formulation (20% perlite and 20% vermiculite with 60% Canadian or Florida peat based on volume) was used as control, and peat was replaced by cowpeat at 10% increments up to 60%, which produced 14 substrates. The 14 substrates were used for rooting single-node cuttings of golden pothos (*Epipremnum aureum*) and heartleaf philodendron (*Philodendron scandens ssp. oxycardium*) and three-node cuttings of 'Florida Spire' fig ([Ficus benjamina](#)) and germinating seeds of sprenger asparagus (*Asparagus densiflorus*) in a shaded greenhouse.

The research showed that container substrates formulated by incorporating 10% to 60% cowpeat had physical and chemical properties similar to the commercial Canadian and Florida peat-based substrates. Biological testing also demonstrated that all tested cuttings rooted and seed germination rates of cowpeat substituted substrates were greater than or comparable to those of control substrates.

The researchers observed that the promising results of the study suggest that there is a potential for using cowpeat for foliage plant propagation and probably for foliage plant production. "The use of cowpeat will

provide the containerized plant industry with an alternative to peat, which in turn reduces peat mining and encourages composting of dairy manure, thus contributing to the well-being of our environment", Chen concluded.

More information: The complete study and abstract are available on the ASHS HortTechnology electronic journal web site:
[horttech.ashspublications.org/ ... nt/abstract/19/2/340](https://horttech.ashspublications.org/...nt/abstract/19/2/340)

Source: American Society for Horticultural Science

Citation: Composted dairy manure in foliage plant production (2009, September 8) retrieved 27 April 2024 from
<https://phys.org/news/2009-09-composted-dairy-manure-foliage-production.html>

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