For peat's sake: Alternative growing media

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These are colorful camellias which were used in the study. Credit: Photo by Federica Larcher

Peat, or semi-decayed vegetation matter, has been used by commercial growers and amateur gardeners since the middle of the 20th century. Peat is added to potting soil to help retain moisture and provide additional nutrients. As the demand for peat grew, acres of peat bogs were being drained and destroyed. Now, concerns about the environmental impact of extracting peat from wetlands are mounting. And as peat supplies are reduced, the cost naturally increases. Diminishing supplies and environmental and economical concerns are encouraging researchers to find viable alternatives to this popular growing medium.

A recent research study led by Federica Larcher and Valentina Scariot of the University of Turin's Department of Agronomy evaluated five materials as partial peat substitutes. The results, published in *HortScience*, show these alternatives have potential.

The study focused on growing camellia, a woody plant that prefers acidic soils and is often grown in containers for decorative purposes. Three varieties of camellia ('Charles Cobb's', 'Nuccio's Pearl', and 'Dr. Burnside') were tested using a combination of peat and the following peat alternatives: green compost such as grass clippings and leaves, pumice, coconut husks broken down into fibers, composted coconut "peat", and pine bark. Each variety was also grown using the standard commercial Sphagnum peat as a control.

Plant growth and the ornamental quality of each plant was evaluated during each phase of cultivation, potting, before repotting, before and after branching and at the end of the experiment. "The alternative growing media tested…performed as well or better than the standard substrate," the study reports. However, green compost was the exception. Plants grown in green compost had the lowest evaluations in all categories. Green compost also increased pH levels with negative effects on plants.

The impact of the different growing media seemed to be most notable during the first 2 months. After that time, no relevant differences were noticed. "Overall, coconut fibers and pine bark resulted in being the most suitable partial peat substitutes," stated Larcher, adding that none of the plants grown in any mixture showed signs of malnutrition or toxicity at any point during the study.

Coconut fibers are recommended as the best option considering technical and economic factors. The study recommends that adjusting fertilization and irrigation practices to make the most of coconut fiber

and peat mixtures will help reduce the costs and losses for nurseries.

More information: The complete study and abstract are available on the ASHS Hortscience electronic journal web site: hortsci.ashspublications.org/c … nt/abstract/44/2/312

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