peatless

Alternative Growing Substrates for Ornamental Potted Plant Production

PEATLESS Project
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The problem

The replacement of the usual peat-based substrate with an alternative due to economic or environmental constrains, should **not be based simply on replacing one raw material with another one**, but rather on designing and formulating a growing media with defined functional crop-specific properties.

The solution

Before determining the final formulation, the **physical and chemical properties of each alternative substrate component must be thoroughly analysed**. Subsequently, the performance and characteristics of the newly proposed substrate blend should be evaluated.

Benefits

The final formulation should ensure **low bulk density, high total porosity, adequate aeration, sufficient water retention and easily available water**, while maintaining the structural properties over time. Mildly acidic pH is preferred and EC should also remain within an appropriate range for the crop and production system.

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Practical Recommendations

- One possible approach for correcting excessive alkalinity is the incorporation of elemental sulphur (S^0) but it should not be applied according to a universal dosage.
- Instead, its application rate should be determined through preliminary laboratory or small-scale incubation trials, monitoring changes in pH and EC over time.
- Elevated EC can additionally be managed through controlled irrigation and leaching, particularly during the initial stages following potting, when soluble salts released from compost or other alternative materials may be highest.
- Nevertheless, irrigation should be considered a management tool rather than a permanent solution to an intrinsically unsuitable substrate.

About PEATLESS and this Practice Abstract

This practice abstract was elaborated in the framework of the PEATLESS project, based on the EIP AGRI practice abstract format. © 2023
Project dates: from May 2025 to April 2028.
Goal: To characterise sectorial needs at selected systems towards tailoring PEATLESS alternative substrate blends to overcome identified barriers for peat reduction in horticulture.

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