peatless

Crucial laboratory parameters for casing soil in peat-free mushroom cultivation

PEATLESS Project
Practice Abstract No. 14

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Country/region:
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Keywords:
#WaterHoldingCapacity
#pH
#Pathogens

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The problem

Peat-reduced and peat-free casing materials in white button mushroom (Agaricus bisporus) cultivation can differ substantially in physical, chemical, and biological properties. These differences affect **water availability**, **aeration, mycelial development, and mushroom production**. Reliable lab characterisation is essential before **selecting alternative materials**.

The solution

Key parameters include **pH, electrical conductivity (EC), moisture content, dry matter, water-holding capacity, and particle-size distribution**. Organic matter, ash, C/N ratio, and pathogen presence provide additional information.

Benefits

A standardised laboratory profile allows **objective comparison of peat-based and alternative materials**. It helps identify formulations with an appropriate **water–air balance, chemical stability, and functional performance**.

Funded by the European Union

Project funded by
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

This project has received funding from the European Union's Horizon Europe Research and Innovation programme under **Grant Agreement No 101216569** and by the Swiss State Secretariat for Education, Research and Innovation (SERI).

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Practical Recommendations

Standardising Peat-Free Casing Characterisation

- Analyse both **individual raw materials and the final casing mixture** using harmonised methods.
- Compare results with a **successful peat-based reference** and interpret **pH, EC, and water-holding capacity together** rather than as isolated parameters.

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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