From candidates to demonstration: Selecting peat-reduced substrate blends in Spain

Alternative Materials

Local and circular materials can replace peat in growing media

- Spent Mushroom Substrate (SMS)
- Sheep wool powder
- Wood fibre
- Perlite
- Green compost
- Composted bark
- Vermiculite

From screening to validation

A simple pathway to identify the most promising growing media.

1 Screen candidate blends

Ten candidate growing media with different peat contents and combinations of alternative materials were screened in lab-scale trials at CITA using lettuce and pepper.

10 candidate blends

2 Evaluate and select

Germination, seedling growth, root and shoot development, key physicochemical properties, and the presence of fungi and bacteria were evaluated.

5 selected for research-facility trials

3 Validate at research facilities

The five selected growing media are now undergoing further validation at CITA.

Selection for commercial demonstration ongoing

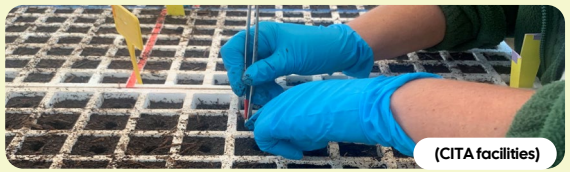
The 5 selected blends for validation

1. SMS + composted bark + perlite
2. Composted bark + sheep wool powder + green compost + vermiculite
3. Peat + composted bark + sheep wool powder + perlite
4. Peat + SMS + sheep wool powder + wood fibre + green compost
5. Peat + SMS + wood fibre + green compost

Validation in practice

Lettuce and pepper validation trials at CITA.

Pepper seedlings growing in one of the selected growing media during the validation trial at CITA.



Sowing of lettuce seeds in plug trays filled with the selected growing media for the validation trial at CITA.

Key message for growers

The five selected growing media, containing no more than 30% peat (some completely peat-free), showed promising results in lettuce and pepper compared with a commercial medium commonly used for seedling production.

Current status and next steps

Lab-scale trials are finished, and research-facility trials are ongoing. Next, the three best-performing blends will be selected for commercial demonstration.

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