Innovate UK: Sphagnum Farming UK - a sustainable alternative to peat in growing media.

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Why *Sphagnum* farming?

Move from wild harvest

To efficient cultivation
Project introduction

- Funded by innovate UK, from 1st Jan 2018 to March 2019

- Many Thanks to all our project Partners: Micropropagation services, Manchester Metropolitan University, The University of East London, Natural England, Melcourt industries and our farming partners the Stanleys.
Micropropagation Services (E.M.) Limited, under the trading name BeadaMoss®, own rights in inventions relating to Sphagnum farming. This technology is currently patent pending under application numbers GB1907229.7 and GB1907228.9.
Our aims:

- “To investigate the cultivation requirements and the production potential involved in growing Sphagnum at scale sufficient to form a viable replacement for peat in horticulture”

- Key variables investigated:
  - Sphagnum Growth and water relations (UEL)
  - GHG emissions across sites and treatments (MMU)
  - Performance of Sphagnum as a peat replacer in Growing media (Melcourt)
What happened:

- We created two research sites - one in Leicestershire and one in Greater Manchester.
- The innovate UK funding largely covered the site set up and establishment phases, with planting taking place in August, September and November.
Site set up, and context:

- We trialed two methods of Sphagnum supply developed by Micropropagation services – BeadaGel™ and BeadaHumok™
- We trialled two innovative irrigation solutions
- We trialled 3 different mulch treatments, with a no mulch control.
Methods:

- Pore water pressure response
- Water table behaviour
- Ground surface level
- Sphagnum Growth: through TLS and Photo capture

Also capturing:
- Weather station data
- Soil nutrient analysis
Growth results – Sharpley site

Promising growth during the establishment phase

20 – 140% increase in mean plug size relative to initial planted plug, in first 6 months.
Water relations and key thresholds.
Water relations and key thresholds.

Pore water potential
Price et al., 1998

Between 0 and -100Hpa
Soil pore water pressures are too low to extract water from live sphagnum through capillary action.

Drought tolerance and recovery:
Clymo and Hayward 1982.
Water relations and key thresholds.

![Graph showing mean maximum pore water pressure by month for the Sharpley site. The graph includes data from different loggers, with key threshold levels indicated.](image-url)
Water relations and key thresholds.
The Sphagnum did not die:

Sharpley site:

Little Woolden site:
Future plans:

- Funding from PPL dream fund is allowing us to continue this year’s monitoring – what we are deeming the growth phase.

- We are close to achieving canopy closure on most plots at both sites. After 9-12 months since planting.

- MMU to continue GHG monitoring now Sphagnum cover is established.


- Developing papers relating to the GHG story, conditions for growth, and peat replacement.
There are exciting times ahead: