Supplying peat-free products in practice & the opportunities for Sphagnum farming.

Neal Wright

Peat-Free essential

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MicroPropagation Services

Peat Free Growing

- **Good Peat-Free growing media available for most plants in most situations**
  - **E.g. Melcourt Peat Free**

- **BUT still a few challenges:**
  - **Ericaceous plants – some slower**
  - **Propagation, especially ericaceous**
    - **Adapted to growing in peat (sphagnum)**
    - **Cotton grasses.**

Cotton Grass for restoration

Peat reduced **Peat Free**

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Cotton Grass for restoration

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Peat Free trials

Best Available Peat Free growing media:

costs more for production of ~5-15%

provided yield similar!

Possible poor yield and increased production time

e.g. For Cotton Grass

Could double costs for a poorer plant

Solution: Sphagnum as a growing medium

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Little Woolden Sphagnum Farming Trial

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.

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Leicestershire Organo-mineral Sphagnum Farming Trial

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Analysis of Sphagnum compared to Peat

Physical properties			
		Peat	Sphagnum
Bulk Density Dry	kg/m3	65-75	11
Water holding capacity	%v/v	50-55	64
Air volume	%v/v	35-42	35

Sphagnum Biomass

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand	Value	Units	Determinand	Value	Units
pH	6.1		Cond. at 20 C	44	uS/cm
Density	14	kg/m3	Ammonia-N	6.2	mg/l
Dry Matter	80.8	%	Nitrate-N	6.0	mg/l
Dry Density	11.3	kg/m3	Total Soluble N	12.1	mg/l
Chloride	8.0	mg/l	Sulphate	5.3	mg/l
Phosphorus	9.4	mg/l	Boron	<0.05	mg/l
Potassium	21.1	mg/l	Copper	0.01	mg/l
Magnesium	<0.2	mg/l	Manganese	0.03	mg/l
Calcium	<0.1	mg/l	Zinc	0.03	mg/l
Sodium	2.1	mg/l	Iron	0.16	mg/l

Trials: Sphagnum as Growing Media

IUCN Peatlands Program 2018

Good growth in all subjects

5 Large UK Nurseries:

Herbaceous, bedding, Hardy Nursery Stock, Orchids, Rhododendron

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Trials by BeadaMoss®

- 50% Sphagnum/Bark
- Vs
- 30% Peat 70% Bark

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Trials by BeadaMoss®

Getting Sphagnum Accepted

Growing Media Association

UK Responsible Sourcing scheme

- We have submitted Samples
  - under test by ADAS
- Growing Media "Grid" for new peat alternative products.
- AHDB project/Defra,
- To assist the industry towards responsibly sourced growing media.

@ BeadaMoss®

We are Growing Sphagnum to use in growing media where no other alternative:

- **Expensive at present:**
  - **Cost of biomass is currently ~£500/m^3**
    - **Adds approx. 15% to cost of production**
    - **Acceptable?**
      - » **Tender process can be a problem**
    - **Producing sufficient Sphagnum**
    - **Expect to be self sufficient within 2 years**

      demand increase and min 2 years to produce crop of Sphagnum

Sphagnum Farming

Productivity

- **Germany: Greifswald**
  yield 260 m^3/Ha/yr

- **AgriTech:**
  Sphagnum Farming UK
  We expect to improve on this
  to > 500 m^3/Ha/yr

Further improvement beyond this as production methods develop

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AgriTech: Sphagnum Farming UK

What we have learnt so far

- **Sphagnum Farming already a commercial reality – high value market**

- **Sphagnum is an excellent ingredient in growing media**

  (Trials: Melcourt Industries)

- **Sphagnum can be dried, processed and handled for use in growing media**

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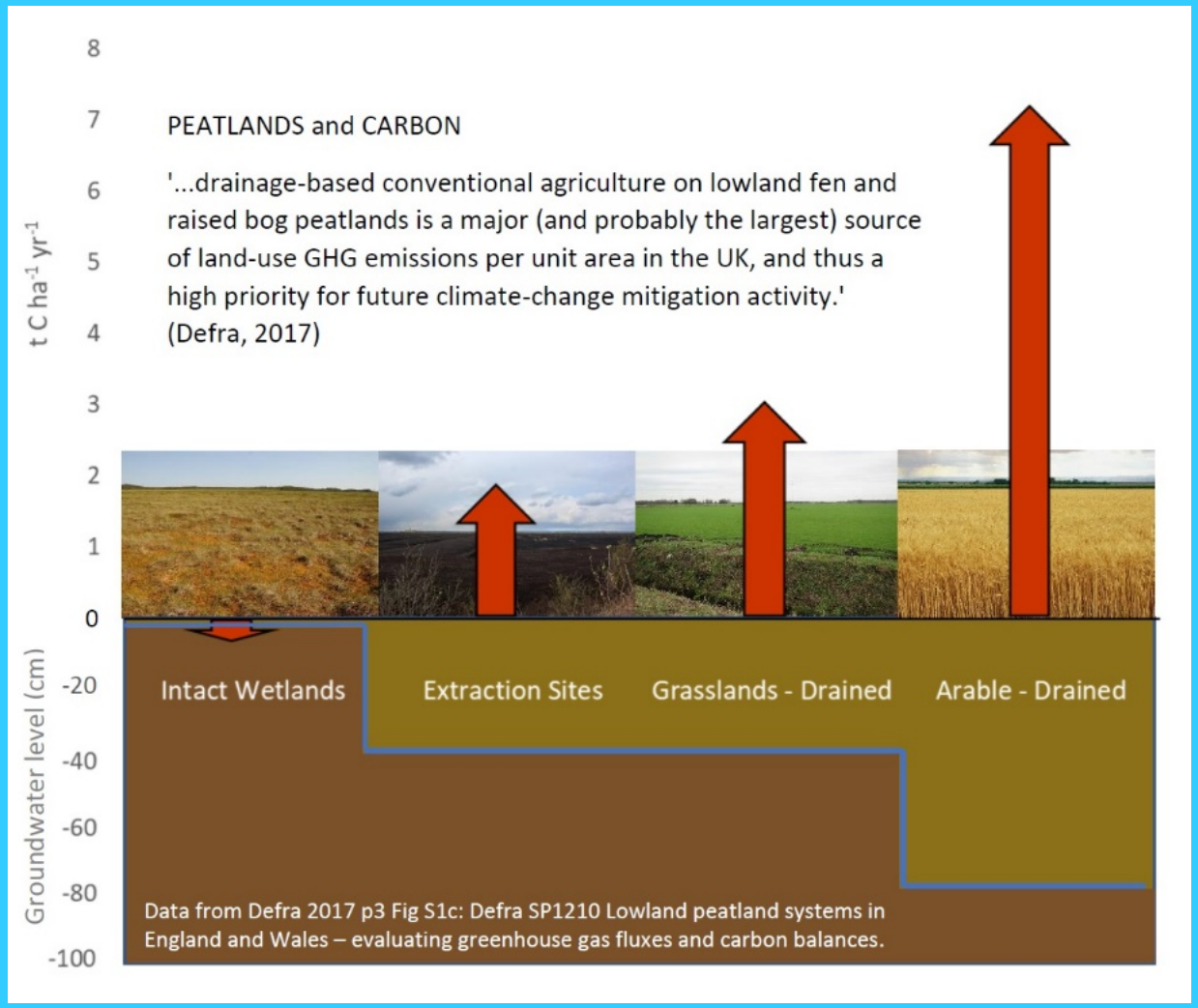
Net Carbon losses and gains in peatlands



Major carbon losses from drained, farmed land

Data from England and Wales in Defra report 2017

Manchester Metropolitan University

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Projects/Grants

- **CarePeat (Interreg NW)**
  - **Carbon loss reduction from peatlands**
    - **Lead Natuurpunt, (Holland/France/Ireland/UK)**
    - **UK Lancashire Wildlife/MMU**
    - **~2 Ha Carbon (Sphagnum) Farming**
- **Waterworks (Dreamfund)**
  - **Paludiculture in Great Fen**
    - **~ 2 Ha Sphagnum Farming**

Applied for:

- **FTI** **(The Fast Track to Innovation)**
  - **Develop EU market**

Sphagnum Farming Scale Up

- **Requires Government incentives**
- **Could be available in quantity to phase out peat by 2030**
- **A sustainable, long-term crop for lowland peat**
- **Significant Carbon reduction**

Sustainable source of *Sphagnum:*

- ✓ No donor site damage
- ✓ No transfer of contaminants
- ✓ Clean - micropropagated in lab
- ✓ Weed free

Thanks to:

Project partners* Sphagnum Farming UK*:

Micropropagation Services (BeadaMoss®)
Manchester Metropolitan University
University of East London
Melcourt Industries Ltd
Natural England