Sphagnum farming in Germany
10 years on the road to sustainable growing media

Greta Gaudig
E-mail: gagdigu@uni-greifswald.de, Dept. of Peatland Studies and Palaeoecology, Inst. of Botany and Landscape Ecology, University of Greifswald, Grimmer Str. 88, 17487 Greifswald, Germany. Tel: +49 (3834) 864177
F. Gohlert, M. Krebs, A. Prager, J. Schulz, S. Wichmann, H. Joosten

Introduction
The region in Germany most abundant in bogs is the Northwest (Lower Saxony), but only 1% is still in a natural state. Virtually the entire bog area is thus losing carbon and heavily emitting greenhouse gases. Sphagnum farming as a wet, site adapted and sustainable alternative allows to use abandoned cut-over bogs and degraded bog grasslands in a climate friendly, sustainable way and to re-establish many ecosystem services of pristine mires. At least of the same importance is the provision of Sphagnum biomass as an alternative for fossil white peat in horticulture.

After 10 years we know...

Growing media
...that Sphagnum biomass - up to 100% - is a suitable raw material for horticultural growing media.

Sphagnum
• propagation
...which Sphagnum species are suitable both for growing media and for Sphagnum farming and which not.
• vegetative: Spores germinate well and build first plantlets in the greenhouse, but not in the field.
• establishment
vegetative: Small fragments produce more capitula. Fresh propagules are best suited for Sphagnum field establishment.
• productivity
• establishment
Large propagules started increasing in length and cover faster than small propagules.
• productivity
Establishment can be accelerated by low straw mulch coverage at the beginning and by maintaining continuously high water levels.
• regrowth
A high and stable water level is the most decisive factor for Sphagnum growth whereas fertilization has only minor effect.
• regrowth
Productivity values mainly range between 3 and 6 t dry mass ha⁻¹ yr⁻¹.
• regrowth
6 months after cutting the peat masses to a length of 2 to 5 cm only 15% had regenerated new capitula, after 12 months 80%.

Mechanisation
...how Sphagnum farming on rewetted peat areas and deeper water works and which risks are to be expected.

Profitability
...that farming Sphagnum biomass is already profitable for niche markets, but so far cannot compete with low-priced white peat.

Challenges for the future

Growing media
• in future new and adapted Sphagnum based substrates have to be developed for further applications in horticulture.

Sphagnum species
• so far we used only masses of a few origins. Further selection is needed to find better provenances.

Mechanisation
• the future challenge is to mechanise the entire production process to foster broad implementation of Sphagnum farming. Machines and methods have to be developed for mass production of Sphagnum propagules and for managing and harvesting Sphagnum fields.

Profitability
• payments for ecosystem services re-established by transforming drained bogs into Sphagnum farming fields can improve profitability and facilitate the sustainable production of this promising, renewable raw material.

The road to sustainable growing media is not a dead-end street; we are on the ramp to the highway...

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