

# The use of peat in commercial horticulture

**The essentials**



*we make it grow*

# Use of peat in growing media

## Peat is the most effective substrate component

The way growing media 'work' must reflect industrial standards, as modern commercial horticulture is a high-tech sector. From today's perspective, there are no comprehensive alternatives to peat that would ensure this excellence is maintained without compromising on quality.

- Peat combines the properties that commercial gardeners expect from a growing medium.
- Peat-based substrates deliver unique reliability in cultivating a wide range of crops.
- Peat-based growing media of consistently high quality can be continuously produced and supplied.
- After processing, the different types of peat have physical, chemical and biological properties that, overall, are unmatched by any other raw material.
- In terms of plant cultivation, raw materials such as wood fibre, green compost and coco pith are a valuable complement to peat.
- Only in combination with peat do these raw materials achieve the desired horticultural effect.
- Growing media without peat are less reliable in terms of crop cultivation.
- Based on the current situation, doing without peat in growing media would lead to a substrate supply gap, as alternative substrate constituents are not available in sufficient quantities.
- Klasmann-Deilmann operates three in-house composting units and several wood fibre facilities at which quality-certified alternative substrate constituents are produced.
- By 2020, Klasmann-Deilmann aims to increase the proportion of alternative substrate constituents to 15% of its annual substrate production.

## Our production of substrate constituents (2017)



**213,274 m<sup>3</sup>**  
Wood Fibre



**91,572 m<sup>3</sup>**  
Green Compost

**3,273,541 m<sup>3</sup>**  
Peat Raw Materials



**3,661,805 m<sup>3</sup>**  
Production of growing media  
and potting soils in m<sup>3</sup>





## *Tree nurseries: a case study*

Growing media for the tree nursery sector promote the growth of plants that, in many cases, are in pots for several years or are planted out. These plants capture CO<sub>2</sub> during the growth process and thus indirectly help absorb greenhouse gases.

- Copper beech: age 4 years, height 120 cm, width 50 cm
- CO<sub>2</sub> captured per plant: 432 g
- Each cubic metre of substrate is sufficient for 200 plants grown in 5 l containers
- In 10 years, 200 plants capture some 217 kg of CO<sub>2</sub>, assuming absorption levels remain unchanged; in actual fact, increasing capture can be assumed, so that the positive impact is even greater
- Per cubic metre of substrate, around 86 kg of CO<sub>2</sub> are indirectly captured by the plants
- CO<sub>2</sub> equivalent to that released by the use of a 'container substrate' (recipe no. 250) will have been 'recaptured' after no more than 10 years

## **Product Carbon Footprint for selected substrates (2016)**

<b>Substrate</b>	<b>Recipe-No.</b>	<b>Type</b>	<b>Emissions Cradle to gate</b>	<b>Emissions Cradle to grave</b>
Base substrate	<b>70413</b>	White-peat substrate	<b>51.3</b>	<b>198.9</b>
Potgrond P	<b>70002</b>	Black-peat substrate	<b>16.8</b>	<b>236.0</b>
KKS organic tray substrate	<b>70062</b>	Black-peat / white-peat blend with green compost	<b>55.4</b>	<b>195.0</b>
Seedling substrate	<b>70080</b>	Black-peat / white-peat blend with coco pith	<b>39.3</b>	<b>171.8</b>
BP substrate	<b>70698</b>	Black-peat / white-peat blend with wood fibre	<b>26.7</b>	<b>158.7</b>

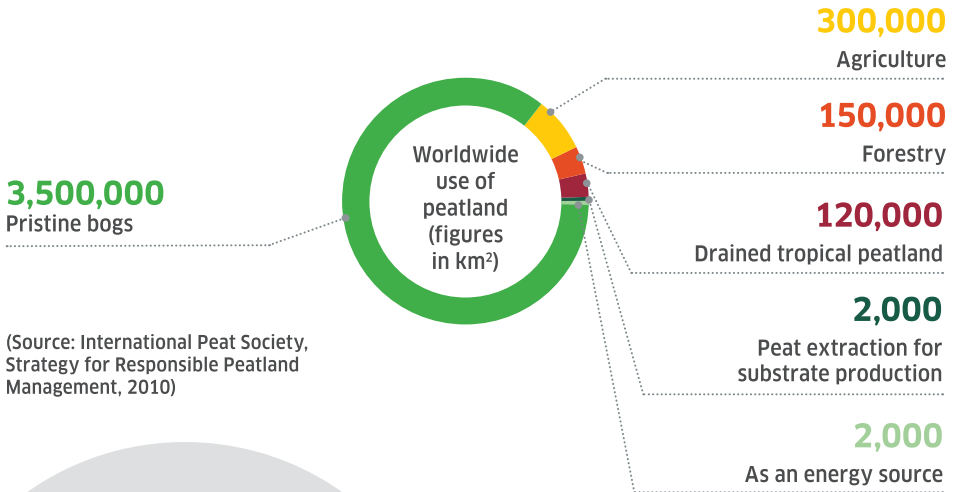


# Peatlands and their use

## Peat and peatlands worldwide

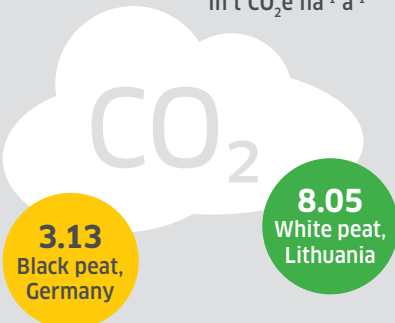
Worldwide, there are around 4,074,000 km<sup>2</sup> of peatland, 86% of which is in a natural state.

- Just under 10% of peatland has been drained in recent decades, especially for agricultural or forestry use.
- The resulting peat extraction areas cover some 2,000 km<sup>2</sup> (= 0.05% of the world's total area of peatlands).



## Emissions from peat extraction

Average emissions  
in t CO<sub>2</sub>e ha<sup>-1</sup> a<sup>-1</sup>



Between 2015 and 2017, we conducted a scientific study in both Germany and Lithuania, involving the measurement of actual emissions (CO<sub>2</sub>e) from peat extraction. Values previously used had been merely deduced as opposed to measured. The investigation indicated that emissions from peat extraction are lower than previously estimated. Peat, therefore, decomposes more slowly than previously assumed.

# Measures following cessation of peat extraction

When extraction of the raw material has come to an end, the areas in question are prepared in line with requirements. Sites under restoration are made permanently available as biotopes for conservation and climate protection purposes. Klasmann-Deilmann has so far re-wetted, afforested or made available for agriculture 8,442 hectares.



**8,442 ha**

All forms of after-use combined



**194 ha**

Afforestation



**4,208 ha**

Re-wetting



**4,040 ha**

Agricultural after-use

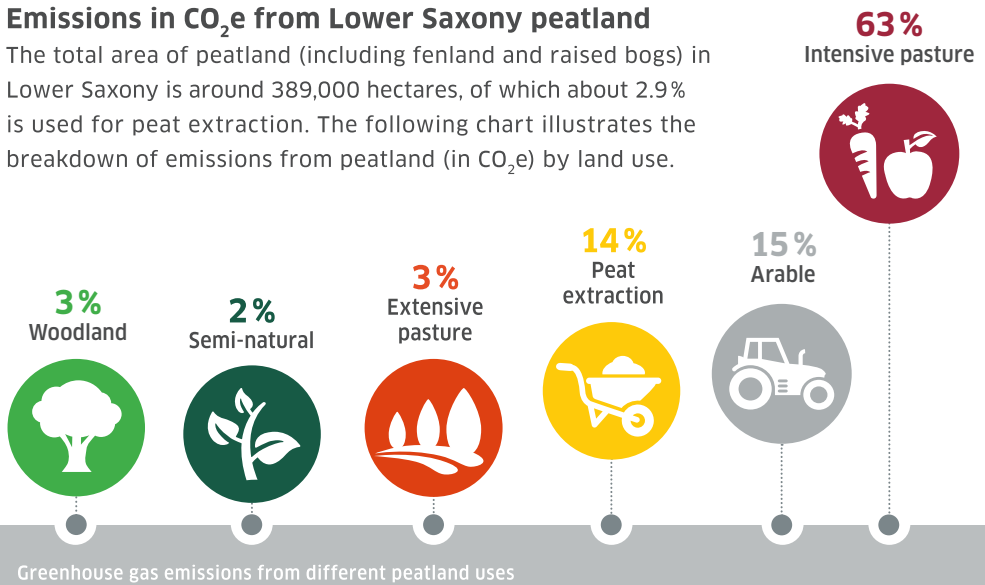
## Peatlands in Germany are protected

In Germany, peat extraction was expressly desired politically even into the 1970s. The policy was to take land lying unused and reclaim it for residential and agricultural purposes. Since then, peat extraction has taken place only on already drained sites, some of them previously used as farmland.

- Pristine bogs are designated protection areas and are left untouched in Germany and elsewhere.
- Only around 2.9% of (former) peatland in Lower Saxony is used for peat extraction.
- A substantial amount of former peatland is subject to agricultural use.
- Klasmann-Deilmann's land management and raw-materials extraction practices adhere to the Code of Practice of Growing Media Europe AISBL (formerly the European Peat and Growing Media Association, EPAGMA).
- Klasmann-Deilmann is managing an increasing number of extraction sites in compliance with the guidelines of Responsibly Produced Peat (RPP), the European certification system that stipulates binding and verifiable criteria for these activities. More than 70% of the company's raw materials are now sourced from RPP-certified commercial peat fields.

## Emissions in CO<sub>2</sub>e from Lower Saxony peatland

The total area of peatland (including fenland and raised bogs) in Lower Saxony is around 389,000 hectares, of which about 2.9% is used for peat extraction. The following chart illustrates the breakdown of emissions from peatland (in CO<sub>2</sub>e) by land use.



### Food sector

We wish, in future years, to step up our supplies to the fruit- and vegetable-growing sector. To document our progress here, we compare sales figures achieved for this area with total sales of growing media (in m<sup>3</sup> in both cases).

**43.9%**  
(2017)

**58.88 t CO<sub>2</sub>e**  
(2016)

### Emissions

As well as reducing our overall emissions, we are especially keen to reduce emission levels per product unit. In this KPI, therefore, we calculate the ratio between our corporate group's total emissions (in t CO<sub>2</sub>e) and our total production volume (in m<sup>3</sup>).



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**Klasmann-Deilmann GmbH** | Georg-Klasmann-Straße 2-10 | 49744 Geeste | Germany

☎ +49 5937 310 | 📠 +49 5937 31279 | info@klasmann-deilmann.com | www.klasmann-deilmann.com