

A close-up photograph of a man with a beard and mustache, wearing a white t-shirt and a black apron, looking down at a green plant in a greenhouse. The background is softly blurred, showing the structure of the greenhouse.

# The use of peat in commercial horticulture

**Facts and figures**



*we make it grow*





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# About us

## Natural raw materials, growing media, renewable energy

Klasmann-Deilmann is the leading corporate group in the international substrate industry, with sales and production companies in Europe, Asia and America. On every continent, our growing media provide a vital basis for the growth of fruit, vegetables, edible mushrooms, ornamental plants, trees and shrubs. They help ensure the success of our partners and customers in the commercial horticulture sector. Our product portfolio includes substrates for professional growers and the consumer sector, white and black peat as raw materials obtained from our own resources, as well as green compost and wood fibre manufactured in-house.

As a supplier of renewable resources, we have also established ourselves in the field of renewable energy. In so doing, we are placing our confidence in expertise we have acquired over many decades in managing land on a large scale and in utilising biomass. Our short-rotation coppice (SRC) plantations are already contributing to the supply of climate-friendly energy, especially in the Baltic region.

There are various benchmarks we use to gauge how seriously we take our responsibility for humankind, the environment and future generations. These include the monitoring of our raw materials and production processes by

Regeling Handels Potgronden (RHP), the certification of our quality-management system to the ISO 9001 standard, our ISO 14001-compliant environmental-management system, the verification of our carbon footprint to the ISO 14064 standard, and reporting in compliance with Global Reporting Initiative (GRI Standards 2016). More than 70% of our raw peat materials are sourced from sites certified to the criteria of Responsibly Produced Peat (RPP). The chief restoration measure applied to former peat extraction areas is re-wetting.

The strategic focus of our company, a medium-sized family business, is extremely forward-looking. Keen to remain the most sustainable producer of growing media, we are working on far-reaching research projects to develop innovative raw materials, substrates and growing systems. In the renewable-energy and resources sector, too, we are single-mindedly pursuing a strategy of growth and are continuing to expand our service portfolio.

In all of our activities, our employees are a foundational asset. Time and again, their commitment plays a crucial role in moving us forward in terms of corporate sustainability and customer satisfaction. We encourage their development and are delighted by their strong ties with our organisation.

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

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

# Emissions reduction strategy

We pursue a range of projects to reduce or compensate for the emissions we generate. They are part of our CO<sub>2</sub> reduction strategy.



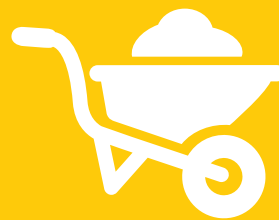
## Avoidance and direct capture of CO<sub>2</sub>

- Afforestation
- Forest management
- Short-rotation coppice (SRC) plantation management
- Generation of heat energy from corporate-owned SRC plantations



## Transport:

- The basic rule is 'ship before rail before road'
- Reducing product weight to optimise capacity utilisation of transport units



## Raw materials:

- Raising the proportion of alternative substrate constituents to 15% by volume of the annual production total by 2020
- Further advancement of sustainable land management
- Minimising the climate impact of our raw-materials procurement
- Rapid implementation of restoration measures on former extraction areas

## Corporate Carbon Footprint (2016 in t CO<sub>2</sub>e)



Energy consumption  
19,705



External suppliers  
19,967



Other sources of emissions  
32,372



Extraction areas  
67,325



Transport  
69,560



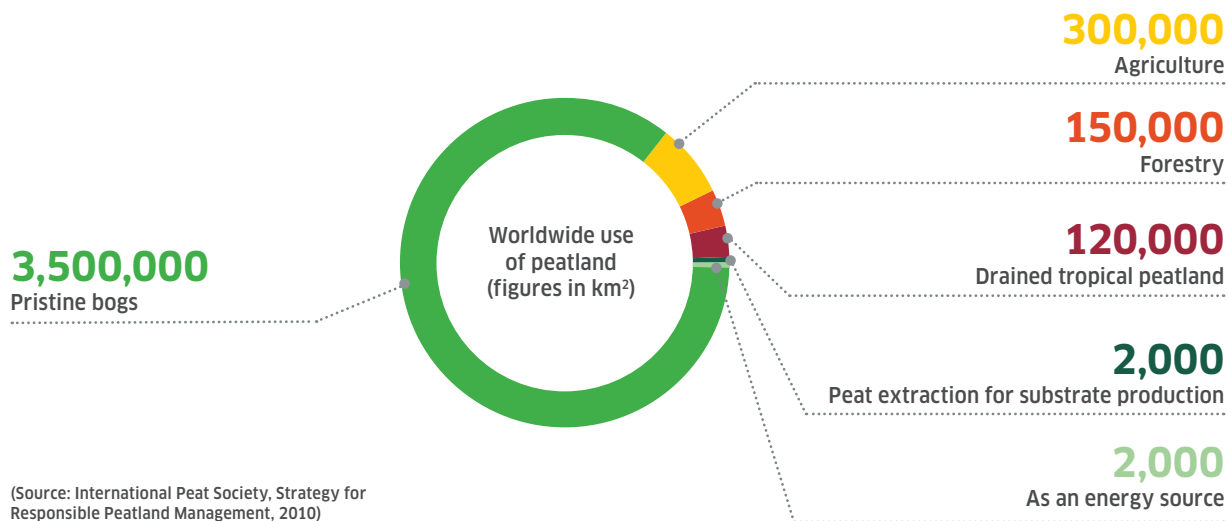
Corporate Carbon Footprint  
208,929

# Peatlands and their use

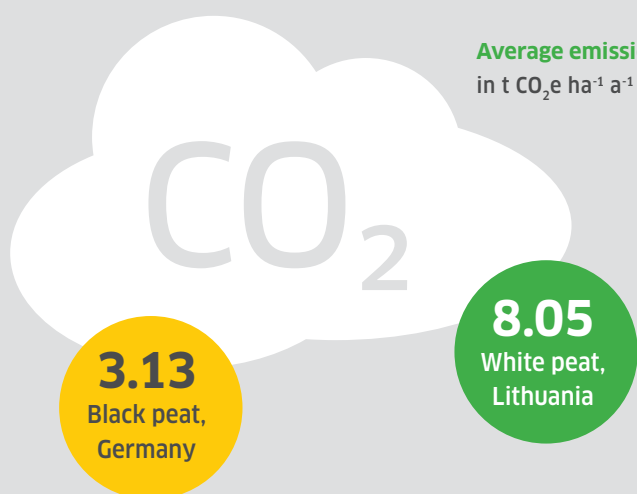
## Peat and peatlands worldwide

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



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

## Embracing our responsibility towards nature

### 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.

Greenhouse gas emissions  
from different peatland uses



## 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>



# Uses

Our selection of substrates covers a wide range of horticultural uses



BEDDING SUBSTRATES



BIO SUBSTRATES



BLOCKING SUBSTRATES



CASING SUBSTRATES



CONTAINER SUBSTRATES



LANDSCAPE SUBSTRATES



POTTING SUBSTRATES



PROPAGATION SUBSTRATES



PEAT



CONSUMER SUBSTRATES



## *Tree nurseries: a case study*

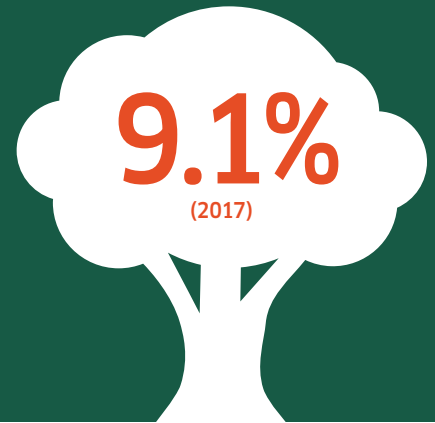
Growing media for the tree nursery sector promote the growth of plants that, in many cases, are in pots for several years or are planted out. These plants capture CO<sub>2</sub> during the growth process and thus indirectly help absorb greenhouse gases.

- 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

# Our key performance indicators

## Alternative constituents

By 2020, we aim to increase the proportion of alternative substrate constituents to at least 15% of our total annual production. This key performance indicator (KPI) reflects the used volumes (in m<sup>3</sup>) of our wood fibre product 'GreenFibre', our green compost 'TerrAktiv', and all other alternative bulking raw materials in relation to the total quantity of growing media (in m<sup>3</sup>) produced by the Klasmann-Deilmann Group.



## 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>).

## Renewable energy

We want to see considerable growth in our Renewable Energy and Resources business unit over the coming years.

Our activities in this area also contribute to emissions avoidance. The figure given below is the ratio between our corporate

emissions (in t CO<sub>2</sub>e) and the emissions avoidance that we made possible (in t CO<sub>2</sub>e); it underlines the increasing importance of energy activities in our organisation and takes account of the emissions-preventing impact of our measures.



17.1%  
(2016)

## Employee health

The following KPI of employee health gives the ratio between the total number of days to be worked by our international workforce and the number of days off sick (including sickness periods of less than and more than six weeks).



96%  
(2016)

## Renewable energy and resources

In the Baltic region, Klasmann-Deilmann has extensive land areas for the planting and operation of short-rotation coppice (SRC) plantations. In the coming years, we intend to develop into a significant provider of alternative energy sources, e.g. for biomass cogeneration plants.



2017

Total area available for establishing SRC in ha **3,267**

SRC sites in use in ha **2,897**





*we make it grow*