KLASMANN-DEILMANN GMBH

SUSTAINABILITY REPORT 2016

according to GRI-STANDARDS 2016

1913

we make it grow

About us

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 fungi, 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, and 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 forestry (SRF) 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 climate footprint to the ISO 14064 standard, and reporting in compliance with Global Reporting Initiative (GRI Standards 2016). 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.

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1. Statement by the Managing Directors

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The Agenda 2030 for Sustainable Development, adopted by the United Nations in September 2015, gives organisations – including enterprises such as Klasmann-Deilmann – the chance to actively participate in an internationally focused initiative whose goals are of the utmost importance. We are already concerning ourselves with six of the 17 Sustainable Development Goals (SDGs) defined in Agenda 2030, and do what we can to create a better future in terms of the 'five P's' cornerstones: People, Planet, Prosperity, Peace and Partnership.

For example, our growing media – an important part of the value chain in the production of vegetables, fruit, herbs and edible mushrooms – help to achieve food security. We supply more than 40% of our total annual production to nurseries in the food industry. And we see additional future potential in this segment.

On a scale much larger than previously, we are also seeking to facilitate the growth of crops in commercial horticulture worldwide by means of our research projects. In line with ecological, economic and social criteria, the aim is that innovative substrate components and growing systems will boost the yields of horticultural businesses and those from alternative cultivation methods – in urban environments, for example.

Our renewable resources are already contributing to supplies of environmentally sound energy sources. Especially in the Baltic region, we have established ourselves as a supplier in the renewable-energy industry within only a few years. A policy situation that favours innovative solutions in the energy sector has benefited us here. In the coming years we will use further significant, as- yet-unharnessed potential for providing 'affordable, reliable, sustainable and modern' energy.

Most of our sites, especially our human-resources-intensive production companies, are located in rural areas where long-term commitment, with secure jobs and appropriate terms of employment, is particularly welcomed. In the countries where we operate, therefore, our ongoing investment in the modernisation and expansion of our production capacity is a factor that benefits structurally weaker regions, as is trade in our products (which continues to increase). Growth in both substrates and energy, as well as the development of new product solutions, will help strengthen our sites into the future.

Extract from the 17 Sustainable Development Goals

Goal 2 End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 13 Take urgent action to combat climate change and its impacts
Goal 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

(INTERNATIONAL 2030 AGENDA; SEE UNITED NATIONS N.D.)

Furthermore, our renewable energies are increasingly improving the 'balance' between the emissions we generate and those we avoid. In recent years, we have paid particular attention to calculating levels of greenhouse gases associated with our organisation and its products. Given that our available data are becoming increasingly robust, we can now introduce appropriate emissions reduction measures. Our extraction areas and the global transport of our products remain major sources. However, progress is being made year by year, and this is reflected chiefly in our product carbon footprint (PCF), which we are continuously lowering with the use of sustainable substrate recipes.

And, significantly, our commitment to rehabilitating former extraction sites is helping to reduce our land-related emissions. Most importantly, however, re-wetting is creating biotopes that serve nature conservation and climate protection purposes over the long term and enable biodiversity to recover.

As a medium-sized family business, we are aware that our contribution to sustainable development will remain relatively small on a global scale. At the same time, we see ourselves as part of a worldwide initiative with shared goals that can be achieved only if all those involved do all that they can. Therefore, in close cooperation with our shareholders and our employees, who are in favour of and actively support our organisation's sustainable focus, we remain committed to pursuing our sustainability goals. And we will encourage our company's stakeholders to constructively support us in following this path.

We look forward to your feedback on our activities and on our Sustainability Report 2016, and to the continuation of our shared dialogue.

Geeste, im September 2017
Managing Directors

Moritz Böcking

Norbert Siebels

2. Sustainability at Klasmann-Deilmann

Our organisation's success and long-term prospects depend to a considerable degree on the availability of high-quality raw materials, on the reliability of our products and services, as well as on the public acceptance of our business models. In implementing the related strategic goals, we follow sustainability criteria. We assess our activities and product solutions in terms of their social and economic acceptability and ecological compatibility. And we seek dialogue with our stakeholders, even on more controversial issues.

2.1 Material topics

Our business areas and brands

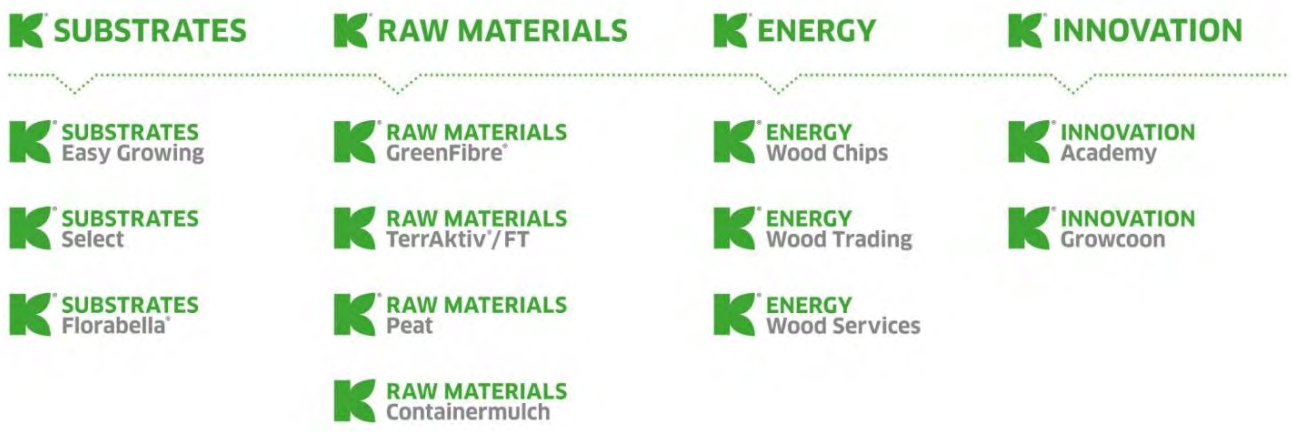
102-2

The core business areas of the Klasmann-Deilmann Group are the extraction of raw peat materials, the manufacture of wood fibre and green compost, and the development, production and sale of growing media. This includes international logistical and consulting services for our subsidiaries, sales partners and customers in international commercial horticulture, as well as trading in substrate constituents. The extraction and use of peat repeatedly provides opportunities for critical debate with NGOs, authorities, political parties and governments regarding the environmental and climate impact of our business activities.

Furthermore, and especially in the Baltic region, we are active in the field of renewable energy and resources. We have established ourselves by creating and managing large-scale short-rotation forestry (SRF) plantations on agricultural sites, by increasing our trade in raw wood materials, and by selling woodchips and biomass blends as energy sources (cogeneration plants being an example). We also provide close-to-nature forest management services. Within this context, we are facing up to the debate on the use – relevant to this segment – of fuel peat in the Baltic region, which remains common but is declining.

Our brands

102-2



List of material topics

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Our material sustainability issues are as follows:

- The debate on the appropriateness/advisability of peat in commercial horticulture and calls for a substantial increase in the use of alternative constituents, both of which were initiated in particular by nature conservation organisations and are now also relevant at the political level (see 3.1);
- Securing the sourcing of raw materials necessary for substrate production, such as peat, wood fibre and green compost, while ensuring the highest product standards in terms of functionality, health and reliability, this being vital both to all those involved along the horticultural value chain (including consumers), and to our internal stakeholders (see 3.1);
- The relevance of peat extraction areas with regard to climate and nature conservation, which is being discussed by bodies including nature conservation organisations, the relevant authorities and (increasingly) at political level (see 5.1, 5.2, 5.3);
- The reduction of emissions, especially relating to peat extraction and the development of options for reducing emissions relating to transport, in which area Klasmann-Deilmann can contribute to achieving the 13th Sustainable Development Goal and the climate goals adopted at the UN Climate Change Conference ('COP21') in Paris (see 5.5, 5.6);
- The expansion of activities in the field of renewable energy and resources, by which we are – partly as a means of spreading risk – applying our core competencies to industry sectors that are a good fit for us (see 4).

In this connection, we carried out measures including the following (which are elaborated on later in this Report) in 2016:

- Continuation of dialogue with political and NGO representatives;
- Securing and expansion of raw-material resources and production capacity;
- The continuation of emissions measurements on our extraction areas, and the re-collection and re-evaluation of all data on land holdings;
- Assistance with the development of the 'Responsibly Produced Peat' (RPP) certification system;
- The acquisition of three companies in the renewable-energy and -resources sector in Latvia.

Engagement with our stakeholders is one of the key factors that results in measures which help us develop more sustainably. The most important of these are as follows:

- Use, which has been increasing since the early 1990s, of alternative substrate constituents such as green compost and wood fibre; the target is that these will account for at least 15% of our annual total production by 2020;
- Far-reaching current research projects aimed at developing new substrate constituents and growing systems;
- Taking of emissions measurements on our extraction areas in order that a key aspect of our global-warming impact assessment can be backed up by the findings of a scientific study;
- Support of the 'Responsibly Produced Peat' (RPP) initiative, in order that independent verification of our responsible corporate action can be provided for the selection, use and restoration of peat extraction sites;
- Disclosure of our product carbon footprint (PCF) within the 'cradle to gate' and 'cradle to grave' system boundaries, in order that we can maximise transparency towards our customers regarding our substrates' climate impact;
- Rigorous expansion of our activities in the renewable-energy sector, which has enabled us to already establish ourselves as a supplier of renewable resources in the Baltic region.

Certification

102-11, 102-12

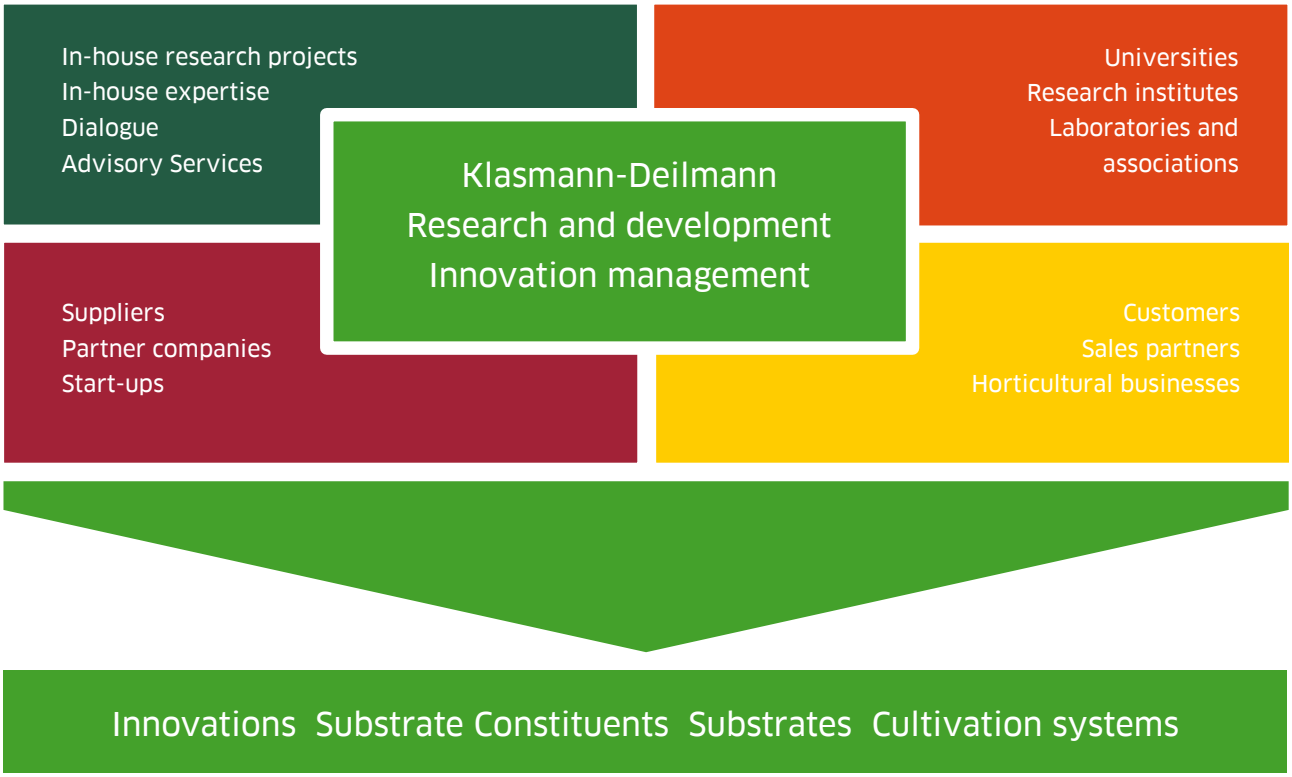
Product quality is controlled in a supply chain control process by the Dutch foundation 'Regeling Handels Potgronden' (RHP). The assessment criteria applied here are among the most stringent worldwide. RHP's quality-assurance process includes all the raw peat materials that we use, as well as our 'TerrAktiv' green compost and our 'GreenFibre' wood fibre product. The production sites in Germany, Ireland, Lithuania and the Netherlands are also RHP-certified; a large part of the marketed substrates originating from these manufacturing facilities is subject to monitoring for compliance with RHP standards.

Klasmann-Deilmann GmbH has been certified to the ISO 9001 standard since 1998 and to the internationally valid environmental standard ISO 14001 since 2008. Both certificates have, since then, been confirmed at each regular audit. Currently, our quality-management system and our environmental-management system satisfy the ISO 9001:2015 and ISO 14001:2015 standards.

Systematic product development and innovation management

301:103-2

Of crucial importance to our organisation's long-term success is systematic, cross-functional innovation management. We have formed additional teams, firmly rooted within the product-minded Research & Development division, that work closely and conduct joint research projects with higher-education centres, training and research institutes as well as with suppliers. We aim to develop growing media and cultivation systems which, meeting the proven horticultural standards, take into account sustainable criteria in every respect and achieve wide acceptance by policymakers, NGOs and the public at large. At the same time, we are continuing application-targeted engagement with professional growers. We take on board our customers' ideas and needs, and turn them into innovative product solutions that are geared towards long-term gain and bring plant producers tangible advantages.



2.2 Organisational structure

Klasmann-Deilmann Group companies

102-1, 102-3, 102-4, 102-10

As our Group's lead company, Klasmann-Deilmann GmbH (based in Geeste, Germany) is assigned all strategic and controlling functions. Klasmann-Deilmann Service GmbH commenced operations as the Group's central services company at the start of the 2016 financial year. The focus of its activities is on commercial/administrative and advisory services in the fields of purchasing, finance, IT, transport, human resources and product consultation – the aim being to get the best use of support resources for the Klasmann-Deilmann Group's companies, both in Germany and elsewhere. All other subsidiaries are either production or sales companies.

In the summer of 2016, Klasmann-Deilmann acquired three Latvian companies in the renewable-energy and -resources sector; these will be consolidated into a new sales company, Klasmann-Deilmann Bioenergy SIA, in 2017. The sales company Neuhaus Italia S.R.L. was merged into Klasmann-Deilmann Italia S.R.L. with effect from year's end.

Shareholders, management, governance bodies

102-5, 102-7, 102-18

Klasmann-Deilmann GmbH's shareholders are Deilmann-Montan GmbH (based in Bad Bentheim), with a stake-holding of 57.5%, and Klasmann Anlage- und Verwaltungs GmbH & Co. KG (based in Meppen), which has a 42.5% interest. The shareholders appoint members to the Administrative Board of Klasmann-Deilmann GmbH, of which Carl-Gerrit Deilmann has been the chair since 2007.

The Managing Directors of Klasmann-Deilmann GmbH are Dr Norbert Siebels (since 1990) and Moritz Böcking (since 2011), who consult with the Administrative Board on key business developments, primarily with regard to their strategic, economic, environmental or social impact. The key in-house decision-making body is the Management Board, which forms the interface between the strategic and operational levels and which consists of the Managing Directors and divisional heads of Klasmann-Deilmann GmbH, as well as the managing directors of Klasmann-Deilmann Group subsidiaries.

This means that, from 1 January 2017, the Klasmann-Deilmann Group has the following organisational structure:

Klasmann-Deilmann GmbH
Lead company

Production		Sales		Service	
Klasmann-Deilmann Produktions-gesellschaft Nord mbH	DE	Klasmann-Deilmann Europe GmbH	DE	Klasmann-Deilmann Service GmbH	DE
Klasmann-Deilmann Produktions-gesellschaft Süd mbH	DE	Klasmann-Deilmann Asia Pacific Pte. Ltd.	SG		
Schwegermoor GmbH	DE	Klasmann-Deilmann Americas Inc.	US		
UAB Klasmann-Deilmann Silute	LT	Klasmann-Deilmann France S. A. R. L.	FR		
UAB Klasmann-Deilmann Laukesa	LT	Klasmann-Deilmann Benelux B. V.	NL		
UAB Klasmann-Deilmann Gedrimai	LT	Klasmann-Deilmann Belgium N. V.	BE		
UAB Klasmann-Deilmann Ezerelis	LT	Klasmann-Deilmann Austria GmbH	AT		
Klasmann-Deilmann Latvia SIA	LV	Klasmann-Deilmann Italia S. R. L.	IT		
Klasmann-Deilmann Ireland Ltd.	IE	Klasmann-Deilmann Polska sp. z o.o.	PL		
Klasmann-Deilmann Potgrondcentrum B. V.	NL	Klasmann-Deilmann China Ltd.	CN		
Klasmann-Deilmann Brugge N.V.	BE	Deutsche Kompost Handelsgesellschaft mbH	DE		
Bol Peat GmbH	DE	UAB Klasmann-Deilmann Bioenergy	LT		
		Klasmann-Deilmann Bioenergy SIA (in the process of formation)	LV		

2.3 Financial results for 2016

102-7, 102-45

In the 2016 financial year, the Klasmann-Deilmann Group had a total headcount of 938 employees (full-time equivalents, FTE) worldwide in its 27 lead, service, production and sales companies.

Klasmann-Deilmann-GmbH's financial statement for 2016 includes all of our corporate group's subsidiaries. It was audited by KMPG Wirtschaftsprüfungsgesellschaft AG, Düsseldorf.

In the 2016 financial year, Klasmann-Deilmann GmbH posted consolidated sales revenue of EUR 185.6 million (previous year: EUR 176.9 million). As previously, the main source of revenue in the reporting year was growing media for commercial horticulture, with sales of EUR 134.8 million (previous year: EUR 129.6 million). This accounts for 72.7% of consolidated sales (previous year: 73.3%). Sales of raw peat materials were EUR 22.9 million (previous year: EUR 21.0 million), and those of substrates for the consumer sector reached EUR 10.9 million (previous year: EUR 12.6 million). Overall, 3,549,000 m^3 of growing media were produced for professional growers and the consumer sector.

The Klasmann-Deilmann Group's end-of-year balance sheet total for 2016 was EUR 186.6 million, which was up EUR 11.1 million year-on-year. Equity capital increased to EUR 80.4 million, up EUR 5.4 million on the 2015 financial year.

Business figures for Klasmann-Deilmann GmbH are regularly published on the website of the German Federal Gazette.

2.4 Key performance indicators 2016

102-7

As a benchmark for our sustainable development, we employ key performance indicators (KPIs) that are tailored to specific aspects of our organisation and reflect our performance. Our goal is continuous improvement.

	2016	2015	2014	2013
Sales revenue in million euros	185.6	176.9	165.0	160.1
Production of growing media for commercial horticulture and the consumer sector in m^3	3,549,000	3,401,000	3,324,000	3,226,000
Extraction of raw peat materials in m^3	2,887,000	3,168,000	3,297,000	3,683,000
Production of wood fibre in m^3	162,000	138,000	99,000	66,000
Production of green compost in m^3	101,000	96,000	89,000	68,000
Total area of SRF plantations in ha	3,131	2,927	2,664	2,440
'Active' SRF plantations in ha	2,356	1,796	1,199	569
Average headcount (FTE)	938	937	948	915
Total emissions in t CO_2e	208,929	*	*	204,144*
Emissions per euro of turnover in kg CO_2e	1.12	*	*	1.28*

* Figure revised from Sustainability Report 2013; data for 2014/2015 were not recalculated

Alternative constituents

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

	2016	2015	2014	2013
Proportion of total production accounted for by alternative constituents	6.8 %	5.9 %	4.5 %	3.4 %

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^3 in both cases).

	2016	2015	2014	2013
Sales to food sector as proportion of total sales	43.5 %	42.6 %	40.8 %	38.0 %

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 CO2e) and our total production volume (in m^3).

	2016	2015	2014	2013
CO_2-emissions per product unit in m^3	58.88 kg CO_2e	*	*	63.27 kg CO_2e*

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 (CCF in t CO_2e) and the emissions avoidance that we made possible (in t CO_2e); it underlines the increasing importance of energy activities in our organisation and takes account of the emissions-preventing impact of our measures.

	2016	2015	2014	2013
Ratio between emissions and emissions avoidance	17.10 %	*	*	5.48 %*

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).

	2016	2015	2014	2013
Employee health	96.0 %	95.5 %	96.3 %	95.1 %

* Figure revised from Sustainability Report 2013; data for 2014/2015 were not recalculated

2.5 Stakeholder Dialogue

Stakeholder groups involved

102-40, 102-42, 102-43, 102-44

Klasmann-Deilmann's key stakeholders are as follows:

- Customers and sales partners in commercial horticulture, the most important target group for our sales activities;
- Customers and business partners in the renewable-energy and renewable-resources sectors, an increasingly important target group for relevant sales activities;
- Suppliers and other business partners of our corporate group;
- Employees of all companies within our corporate group;
- The Klasmann-Deilmann Group's shareholders;
- Lobby groups, especially at European and international level;
- Environmental organisations as our dialogue partners with regard to the use of peat as well as current and former extraction sites;
- Public authorities and governments as approval bodies for numerous projects, including those of crucial importance to the future of our company, and as our dialogue partners with regard to the use of peat as well as current and former extraction sites.

As a matter of principle, we seek and cultivate direct dialogue with our stakeholders.

- For example, the Managing Directors of the Klasmann-Deilmann Group are engaged in ongoing discussions with our shareholders. Meetings are held with the shareholder-appointed Administrative Board several times a year.
- Our employees are included in a multifaceted process of dialogue by means of performance appraisals, departmental meetings, newsletters, noticeboards, circular e-mails, our Intranet presence, company meetings and other suitable measures.
- Relevant personnel at all hierarchical levels maintain close contact with our sales partners, customers, suppliers and other business partners, as well as with authorities and environmental organisations. This takes place via the usual channels, at appropriate intervals – preferably in face-to-face meetings.
- In cases of particular importance (as, for instance, in dialogue with representatives at government level), the Managing Directors of the Klasmann-Deilmann Group become involved as well.
- In the case of certain projects, direct two-way communication takes place at professional-association level. During the reporting period this applied, for example, to the ongoing dialogue between the European lobby group 'Growing Media Europe' and the responsible EU Commission in Brussels.
- In addition, in 2015 we identified from among the above mentioned stakeholders the product champions, opinion leaders and sparring partners that are most important to us worldwide. Since 2016, we have increasingly involved these individuals in targeted dialogue on issues relevant to us and our stakeholders.

Customer satisfaction

102-43

So that we can assess how satisfied horticultural businesses are with our substrates, services and employees, we set great store by direct dialogue with our customers. We augment feedback that is obtained on an ongoing basis with targeted surveys conducted at longer intervals.

As our experts are regularly on-site, we frequently receive feedback from our international markets and straight from the horse's mouth, so to speak. We evaluate it and take any necessary steps. This means that we receive criticism and praise very soon after the event and can pass it on to the 'source'. Problems can be solved and things put right without delay. This results in a continuous process of improvement that benefits our customers.

At irregular intervals, we complement this non-systematic feedback with a 'specific customer satisfaction survey' targeting professional growers. In 2011, for example, we surveyed some of our sales partners and our own sales subsidiaries. In 2014, our customer base in Germany received a questionnaire aimed at obtaining a general picture in terms of customer satisfaction. We were delighted at how positive our customer response was. The analysis showed that our employees – above all our specialists paying on-site visits – performed very well. This confirms the assumption that direct dialogue remains of particular importance for our customers in commercial horticulture.

External initiatives

102-12, 102-13, 102-43

Through membership of leading international, European and domestic associations, societies and other organisations, we are strengthening political and scientific dialogue. This dialogue may, in turn, influence political decisions that affect both our economic sector and society at large. The focus is on:

- securing the supply of raw materials for substrates;
- the study and standardisation of growing media;
- relevant legislation; and
- the interdisciplinary complexities involved in the horticultural sciences.

At European level, we are actively involved in (and a founding member of) the lobby group Growing Media Europe (GME; the successor organisation to the European Peat and Growing Media Association, EPAGMA), for which we – initially until 2017 – are providing the Chair. Coordinating its work with member companies in the peat and substrate sector, GME represents the shared interests of the industry in connection with revision of European regulations such as:

- the European Fertilisers Regulation;
- the EU Organic Farming Regulation; and
- the European eco-label for growing media and soil improvers

As our company's internationalisation continues, we are also intensifying our global work with professional associations. Within the International Peatland Society (IPS), Klasmann-Deilmann is providing a member of the Executive Board and (as of August 2016) the President.

Looking ahead, we expect professional associations such as the IPS to play an increasingly major role, not least in view of the growing influence of international conventions exploring (at global level) the balancing act between peatland protection and use.

Membership of organisations

Among other organisations, Klasmann-Deilmann
is a member of the following:

- Growing Media Europe AISBL
- International Peatland Society (IPS)
- Deutsche Gesellschaft für Moor- und Torfkunde (DGMT; German Peat Society);
- Regeling Handels Potgronden (RHP);
- Zentralverband Gartenbau (ZVG; Germany's national horticultural association);
- Bundesgütegemeinschaft Kompost e. V. (German Federal Compost Quality Assurance Association);
- Gütegemeinschaft Substrate für Pflanzenbau (GGS; Quality Assurance Association Growing Media for Plant Cultivation);
- Gemüsebauberatungsring Papenburg e. V. (Papenburg Consulting Group for the Vegetable-Growing Industry);
- Ökoring e. V. (Lower Saxony's advisory organisation for ecological growers);
- Bundesverband BioEnergie e. V. (BBE; German BioEnergy Association);
- Emsländische Stiftung Beruf und Familie (the Emsland region's 'Work and Family' foundation);
- Global Reporting Initiative (GRI);
- Niedersächsische Allianz für Nachhaltigkeit (Lower Saxony's Alliance for Sustainability);
- 3N Kompetenzzentrum e.V. (Lower Saxony's central information point for renewable resources and bioenergy)

3. Growing media

Our growing media help ensure the healthy growth of plants grown under glass or in the open. With our substrates, horticultural businesses all over the world produce a wide range of ornamental plants, shrubs and trees that improve the quality of life for many. Our products are also of increasing importance in the food industry, resources for food production available to the rapidly growing global population being limited. Our substrates are instrumental in enhancing the efficiency of – and hence yields from – the cultivation of fruit, vegetables, herbs and edible mushrooms.

3.1 Raw materials and other resources

102-11, 301:103-1, 301:103-2, 301:103-3

The world's need for crops of all kinds cannot remotely be met unless their growth is specifically boosted. Especially within the food sector, it will become increasingly important that land available for production is used as efficiently as possible. Yield per unit area must be increased if the world's food supply is to be secured. Yet it is also vital to conserve soils and resources. It is therefore crucial that crop yields obtained utilising modern technology and growth-promoting products are generated in line with sustainability criteria. This is just as relevant to commercial horticulture, in which we operate on a global basis, as it is to agriculture. Our growing media help to meet increasing global demand efficiently and with extreme reliability.

A substrate's quality is measured by how well it works in nurseries. These days, professional growers demand well-developed, tried-and-tested and highly reliable products for trouble-free cultivation. It remains the case that only peat-based growing media can meet these requirements. Peat is a substrate constituent that has the full range of physical, chemical and biological properties needed by plant producers, and which is available long term in the necessary quantities. For more than 50 years, peat has been the only known raw material that is fully proven as a growth medium in modern commercial horticulture.

Nevertheless, criticism persists of the use of peat in substrates for commercial and non-commercial growers. Since the 1980s, voices from the realm of politics, nature conservation bodies and critical consumers have called for peat usage to be halted or at least considerably reduced and phased out – the reason being to protect boglands in which peat forms.

In the ongoing debate, however, one question remains insufficiently answered: which materials are to replace peat as a raw material without compromising on quality and quantity? Mentioning alternative substrate constituents such as green compost and wood fibre is not entirely helpful in this context.

For decades now, Klasmann-Deilmann has been involved with the development and utilisation of alternative raw materials in growing media. 1991 saw us start up our first composting facility; today we have three. Substrate blends containing up to 40% green compost have been standard for us for quite some time. In the 1990s we began adding wood fibre; we now have several wood fibre facilities of our own and are continuously developing new uses for this raw material. The proportion of alternative organic constituents in our growing media is increasing because their utilisation in many areas of application is horticulturally beneficial and provides additional advantages. Being renewable resources, they also help to conserve peat resources and to further improve these substrates' carbon footprint.

Nevertheless, there are limits to their use. The valuable properties of alternative constituents can reach their full potential only in combination with peat. And there are not nearly enough alternatives available to allow peat substitution in terms of quantity. We are, therefore, investing much in ensuring our own production capacity, in securing necessary resources by means of long-term supply agreements and, applying the high quality standards expected of a substrate manufacturer, in producing wood fibre and green compost ourselves, so that alternative ingredients will always be available in the required amounts.

Klasmann-Deilmann has also set itself the goal of continuously broadening the scope for usage of alternative constituents, and of increasing their proportion of our annual production to at least 15% (by volume) by 2020.

We are facilitating this process by intensifying our sales and consulting activities, as horticultural businesses in many countries first need guidance on the additional advantages of alternative constituents. At the same time, we evaluate all of our measures on an ongoing basis, particularly through close dialogue between sales, product development and management. As well as the latest findings from in-house and external research and development, we pay particular heed to the experience of our customers in commercial horticulture.

However, peat, with its unique properties, will remain an essential – and only partially replaceable – substrate constituent. It is because of this that we are securing our long-term peat supplies.

Complaints relating to the production or use of peat and alternative constituents are dealt with under our sophisticated complaint management system, one of the requirements for our certification to the ISO 9001 and ISO 14001 standards.

Quality assurance of our substrate constituents

102-11, 301:103-2

Both for our customers and ourselves, it is crucial that we secure the raw materials we need to produce our substrates – including peat, wood and green compost – while ensuring the highest product standards in terms of functionality and the impact on health and reliability. To ensure their highest quality, we commission testing of our raw materials – and, if appropriate, the suppliers – to the requirements of Dutch organisation 'Regeling Handels Potgronden' (RHP). We continuously test proven and new components as to their suitability for use in substrates, and subject them to growing trials in order to guarantee and further optimise the physical, chemical and biological properties of our products. As well as raw materials certified to RHP, PEFC (Programme for the Endorsement of Forest Certification Schemes) or RAL (German Institute for Quality Assurance and Certification) standards, we are also focusing on in-house solutions for fertiliser formulations, wetting agents and additives.

Peat

102-2, 301:103-2

Raised-bog peat has been the most important component in growing-media manufacturing for more than 50 years now. Commercial horticulture is tailored to its multiple advantages that lead to optimum growth and high yields in industrial-scale plant production. Peat-based substrates deliver unique reliability in cultivating a wide range of plant crops. They can be continuously produced and supplied to a consistently high quality. After processing, the different types of peat have physical, chemical and biological properties that make them ideal for horticulture and which, overall, are unmatched by any other raw material. In view of this, peat will remain the key constituent in substrate production until an all-round replacement is found.

Securing the sourcing of raw materials is, therefore, a high priority. We have extensive sites in Germany devoted to the extraction of frozen black peat. In Lithuania, too, high-quality grades of more decomposed peat have been available for some years, and we are increasingly utilising these for substrate manufacturing. We use our extensive resources in Lithuania, Latvia and Ireland for sod-cut or milled white-peat extraction – resources that will ensure supplies to our production facilities for many decades to come. The techniques involved in raw-materials processing are subject to an ongoing process of improvement.

Our total extraction of raw peat materials in the 2016 financial year decreased to 2.887 million m^3 (previous year: 3.168 million m^3). This was caused by the absence of the necessary cold spells (these being required so that the black peat freezes right through), persistent rainy periods during the harvesting months, and the cap (which had been planned) on extraction in Germany.

Why peat?

Physical properties
- High structural stability
- Optimum ratio between air
- and water capacity
- Good wettability

Biological properties
- Free from weed seeds
- Free from pathogens

Chemical properties
- Ideal pH value
- Optimum nutrient levels
- Good nutrient buffering
- Free from harmful substances

Economic properties
- Long-term availability
- Uniform characteristics
- Quality that meets the requirements of a wide range of plants

Green compost

102-2, 301:103-2, 301-2

Since the early 1990s, we have run our own composting facilities in Groß Hesepe and Bohmte – with another plant operating in Dörpen since 2006 – at which green waste is processed into 'TerrAktiv', a compost for growing media. Our units are the only ones in Germany subject to RHP quality assurance. TerrAktiv green compost is RHP-certified, carries the RAL quality-assurance mark and, for use in organic substrates, complies with EU Regulation (EC) No. 834/2007 and Annex I to Implementing Regulation (EC) No. 889/2008.

TerrAktiv green compost has become a major component of organic substrates. By producing it at our own composting facilities, we ensure the raw material is of consistently high quality. Both green waste and collection points undergo regular inspection. The same applies to the rotting process, which is continually checked by means of chemical analyses, and during which the compost is enriched by adding biodynamic preparations, ensuring that microbial activity is stimulated. Colonisation by predatory mites effectively aids biological control of sciarids in the greenhouse, as do innovative fertilising solutions that we have developed in cooperation with a German university. Biological parameters, too, are constantly monitored; this includes conducting growth trials on sensitive plant species. In addition, inspections are conducted several times a year by an independent, external certification organisation.

Why green compost?

TerrAktiv
- is biologically active
- suppresses root diseases
- ensures potted herbs live longer
- is quality-assured

TerrAktiv
- acts as a slow-release nutrient source
- has a high buffering capacity
- improves re-wettability
- promotes the conversion of organic fertiliser into plant-available nutrients

As green waste is being utilised more and more as an energy source, there is now competition for these materials. Particular grades of green-waste material are no longer available to us. However, we will do all we can to further expand our composting activities, especially since our compost is very popular as a substrate ingredient with organic horticulturalists.

Production of the substrate constituent TerrAktiv rose to 101,000 m^3 in 2016 (previous year: 96,000 m^3). As green compost is currently the only recycled materials that we use on an appreciable scale, recycled materials accounted for 2.85% of our total production of 3.549 million m^3 in the reporting year.

Wood fibre

102-2, 301:103-2

We have been using wood fibre as a bulking ingredient in our substrates since the 1990s. Following a developmental phase lasting several years, in 2010 we put into operation (in Germany) the first facility for manufacturing our own wood fibre product branded 'GreenFibre'. Today, we also have our own wood fibre plants at our production sites in Ireland and the Netherlands. Extensions and additional facilities are in preparation.

Production of GreenFibre involves subjecting softwood chips to special heat and physical treatment which separates the fibres. The process generates temperatures as high as over 100°C, ensuring that unwanted substances escape from the woodchips as gas, sterilising the GreenFibre. This process also allows the structure - and hence the physical properties – of GreenFibre to be precisely defined, giving rise to a consistently high-quality component produced from renewable resources.

Because of the special production process, GreenFibre contains only a very low share of fine particles, which prevents subsidence and reduction of air capacity in the substrate during cultivation in containers. The coarse particles of Klasmann GreenFibre have an optimised fibrous structure to ensure drainage and even distribution within the growing medium.

Why wood fibre?

GreenFibre

- supports healthy, rapid root development
- ensures optimum drainage
- increases air capacity and ensures long-term structural stability

GreenFibre

- ensures straightforward supplementary fertilisation of crops by stabilising the nitrogen cycle
- reduces transport costs due to its low weight

GreenFibre

- is certified to RHP, PEFC and FSC standards
- complies (for use in organic substrates) with EU Regulation (EC) No. 834/2007 and Annex I to Implementing Regulation (EC) No. 889/2008.

The quantity of the GreenFibre substrate constituent manufactured rose to 162,000 m^3 (previous year: 138,000 m^3) during the reporting year. Part of this was processed in combination with TerrAktiv green compost to form the fermented wood fibre/compost blend, 'TerrAktiv FT', which is of increasing importance in the production of our organic substrates. We also make other wood products such as 'TerrAktiv container mulch', of which 20,100 m^3 was produced in 2016 (previous year: 16,400 m^3).

Raw-material-related locations

102-4, 102-7

The following production companies extract and produce our raw materials.

	Country	Peat extraction	Composting	Wood fibre production
Klasmann-Deilmann Produktionsgesellschaft Nord mbH	DE	●		
Klasmann-Deilmann Produktionsgesellschaft Süd mbH	DE	●	●	●
Schwegermoor GmbH	DE	●	●	
UAB Klasmann-Deilmann Silute	LT	●		
UAB Klasmann-Deilmann Laukesa	LT	●		
UAB Klasmann-Deilmann Gedrimai	LT	●		
UAB Klasmann-Deilmann Ezerelis	LT	●		
UAB Klasmann-Deilmann Latvia	LV	●		
Klasmann-Deilmann Ireland Ltd.	IE	●		●
Klasmann-Deilmann Potgrondcentrum B.V.	NL			●

Materials used

301-1

In connection with the manufacture of growing media, we used the following quantities of substrate base materials and additives, fertiliser, packaging film and pallets:

	2016	2015	2014	2013
Raw peat materials	3.299 million m^3	3.144 million m^3	2.915 million m^3	3.075 million m^3
GreenFibre wood fibre product	169,343 m^3	140,694 m^3	107,326 m^3	81,349 m^3
TerrAktiv green compost	58,666 m^3	42,631 m^3	43,698 m^3	31,842 m^3
Lime	19,543 t	18,716 t	18,448 t	17,392 t
Clay	19,248 t	10,303 t	10,114 t	7,609 t
Sand	2,465 m^3	2,497 m^3	2,389 m^3	2,152 m^3
Mineral fertiliser *	4,496 t	4,190 t	3,325 t	2,525 t
Organic fertiliser	806 t	698 t	632 t	537 t
Packaging film	2,185 t	2,019 t	1,240 t	1,493 t
Pallets	575,513 units	435,675 units	556,050 units	549,780 units

* Figures 2013 without substrate production from Belgium, as of 2014 including Belgium

Where the above trends do not follow a clear pattern, this is caused largely by differences in the degree of compaction of the raw materials prior to processing, the varying proportions of sod-cut peat that has yet to be fractionated, the different amounts of loose goods as a proportion of total goods produced, and the order-related potential for capacity utilisation of pallets.

Procurement practices

102-9, 102-16

Our ‘Sustainability guidelines for suppliers’, in force since 2012, augment our selection criteria for our suppliers; they contain requirements for upholding human rights, for employees’ working conditions and for environmental standards, as well as a business ethics code.

We require all our suppliers to commit to these guidelines. The standards this document defines, and their adoption, are a prerequisite for all supply agreements with Klasmann-Deilmann. In accepting a contract or order, our supplier undertakes to ensure that all their processes conform to the provisions of these guidelines. We play an active part in achieving a common understanding of social, ethical and ecological standards. As in previous years, 2016 saw numerous conversations with suppliers take place at which our sustainability guidelines were high on the agenda. On this basis, we can confirm that our suppliers conscientiously embrace these standards.

The key points of our sustainability guidelines are:

- prohibition of child labour on the part of our business partners or their suppliers;
- prohibition of forced or compulsory labour;
- prohibition of any form of discrimination;
- freedom of association and the right to conduct collective bargaining – if required under applicable law;
- minimum wage and overtime pay in line with statutory benefits for staff;
- encouraging ongoing improvements and refinements to occupational health and safety arrangements in compliance with national regulations;
- prohibition of bribery, extortion and embezzlement;
- evaluation of suppliers on the basis of their optimisation measures regarding the management of resources, minimisation of ecological damage, adoption of a precautionary approach, and the promotion of environmental responsibility and environmental technologies.

3.2 Production

102-2

Making a growing medium involves enriching our substrate base materials – peat, green compost and wood fibre – with perlite, lime, fertilisers and additives such as sand or clay. Organic and mineral fertilising solutions ensure that plants are specifically provided with all the nutrients and trace elements they need. The addition of lime regulates the substrate's pH level.

Production processes

301:103-2

Our growing media are manufactured at our own production facilities, which are equipped with ultra-modern machinery and technical installations. A range of around 150 different raw peat materials, admixing agents, fertilisers and additives are available. In the reporting year, production of growing media for commercial horticulture and the consumer segment increased to 3.549 million m^3 (previous year: 3.401 million m^3).

Easy Growing

102-2

Our Easy Growing product line contains a range of those growing media in greatest demand from our customers worldwide. With a focus on optimum functionality for diverse uses in commercial horticulture, each product is fully tried and tested in terms of its composition and has proved successful across many applications.

Select

102-2

The Select product line is all about choosing the ideal substrate blend for individual requirements in consultation with our customers. These may include a particular crop, a special propagation system, or even unusual technical, climatic or geographical factors.

Our raw materials offer a wide spectrum of options for creating special-purpose substrate recipes. With guidance from our experts, the right components and a suitable combination of nutrients are selected, and an appropriate mixture ratio determined.

Within the Select line, a country-specific range of growing media has emerged in virtually all international commercial horticulture markets, tailored to the specific demands of the specialist crops preferred in a given locality.

Organic substrates

102-2

Our organic substrates conform to the regulations and requirements of growers' associations in Germany, Austria and Switzerland. The entire production process for green compost and organic substrates is monitored by the EU ecological certification organisation 'Grünstempel'. Depending on what our substrates are specifically utilised for, in certain cases we achieve peat substitution of up to 50% in organic horticulture by adding TerrAktiv, GreenFibre and clay. In this segment, use is made of organic fertiliser such as hoof and horn shavings from BSE-free countries.

Substrates for the consumer segment

102-2, 301:103-2

In the consumer segment, we sell potting soils and garden composts under the Florabella brand. The composition of these products is based on our substrate recipes for commercial horticulture. For reasons of both quality and availability, peat will also remain essential as the main component in consumer products, although here too the utilisation of alternative constituents for substrates is continuously increasing. An example is the 'Florabella organic potting soil' we sell, with a high proportion of green compost and wood fibre from domestic renewable resources. Also available is our 'Florabella potting soil from renewable resources', which is manufactured solely from the above-mentioned raw materials, making it a completely peat-free product.

Our production sites

102-4, 102-7

The following production companies process our raw materials into substrates:

	Country	Production of growing media for commercial horticulture	Production of growing media for the consumer segment
Klasmann-Deilmann Produktionsgesellschaft Nord mbH	DE	●	
Klasmann-Deilmann Produktionsgesellschaft Süd mbH	DE	●	
Schwegermoor GmbH	DE		●
UAB Klasmann-Deilmann Silute	LT	●	
Klasmann-Deilmann Ireland Ltd.	IE	●	
Klasmann-Deilmann Potgrond-centrum B.V.	NL	●	
Klasmann-Deilmann Brugge N.V.	BE	●	

Product stewardship

102-2, 102-11

All of our products are made to the highest industry-specific standards. One hundred per cent of our products and services undergo inspections (customary in the sector) with regard to their impact on health and safety, in order to determine additional potential for improvement. As well as using our own raw materials, we buy in components and additives for substrates, choosing only products that comply with RHP standards.

The labelling of our products – and the raw materials we utilise – on packaging, and their designation on delivery notes, consistently complies with the requirements of the recipient countries.

Because of their components' properties, substrates tend to be of high weight. Therefore, we also offer smaller, and hence lighter, packaging sizes, particularly in the consumer segment. We have also, in the form of our 200-litre bales, developed a size of container for commercial horticulture that is much more lightweight than other standard packaging units. Many of these bales are exported to countries in which they are manually transported and handled.

We determine the content quantities of our substrate packaging units, and the quantities of loose substrate supplied, on the basis of the relevant statutory requirements with calibrated instruments and using the procedure described in EN 12580. At regular intervals, the relevant office of the Weights and Measures authority in Lower Saxony (MEN) conducts neutral checks of content quantities at the German production sites. Furthermore, Klasmann-Deilmann has committed to voluntary self-regulation resulting from a joint initiative between the horticultural-industry association Industrieverband Gartenbau (IVG e. V.) and German substrate producers.

Packaging

The packaging for our growing media is made chiefly from petroleum-based granules. Sometimes, further development of these source materials on the part of our suppliers provides scope for cutting down on packaging material without compromising on quality – by reducing foil thickness, for example. We are assessing innovative materials (some based on renewable resources) currently in development, in terms not only of their intrinsic suitability but also their economic, environmental and social impact. However, we are not at present aware of any alternative raw material that satisfies our packaging needs.

3.3 Customers and sales

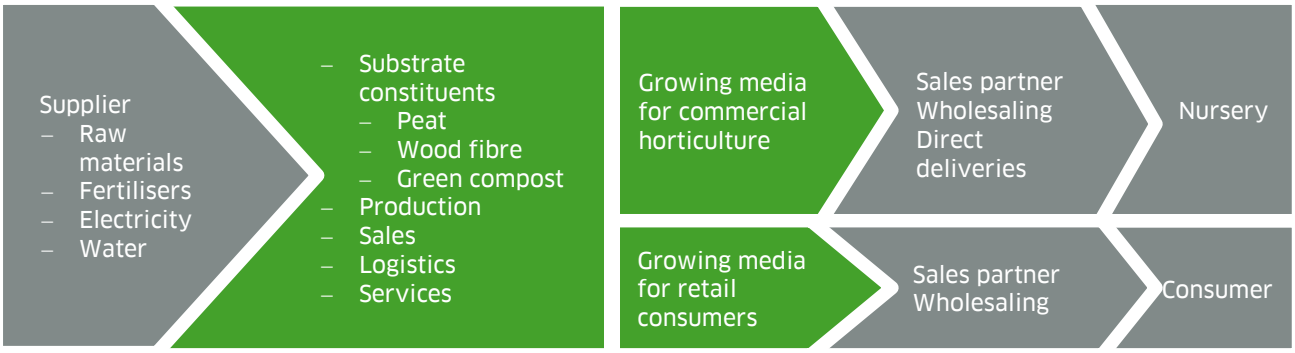
102-6, 102-9

Our customers in commercial horticulture and the consumer segment

Commercial horticulture has reached an extremely high level of industrialisation in many countries. Computer-controlled irrigation and fertilisation regimes, automated potting machines, transplanting robots, air-conditioned greenhouses and just-in-time production dominate the production process in modern nurseries. Many businesses now specialise in one particular crop or a specific stage of cultivation, such as young-plant propagation.

The wide spectrum of our substrates originated in the diversity of the horticultural companies we supply. They range from small speciality businesses for exotic crops, and ecologically-minded businesses producing organic potted herbs, to tree nurseries, golf course landscapers and large-scale producers. Along with other factors – seeds, seedlings or young plants, the technical set-up and the cultivation method used – our substrates play a crucial role in horticultural success. They ensure that the various production resources interact effectively and that crops develop optimally.

Our most important market segment is commercial horticulture, which we supply with ready-to-use growing media, the end customers being nurseries throughout the world. Additionally, a relatively small proportion of our substrates are intended for the consumer segment. As a supplier, we form an integral part of the materials value chain in commercial horticulture. This incorporates our consulting and other services, as well as our innovation management practices.



Activities of Klasmann-Deilmann / **Activities of third parties**

International sales structure

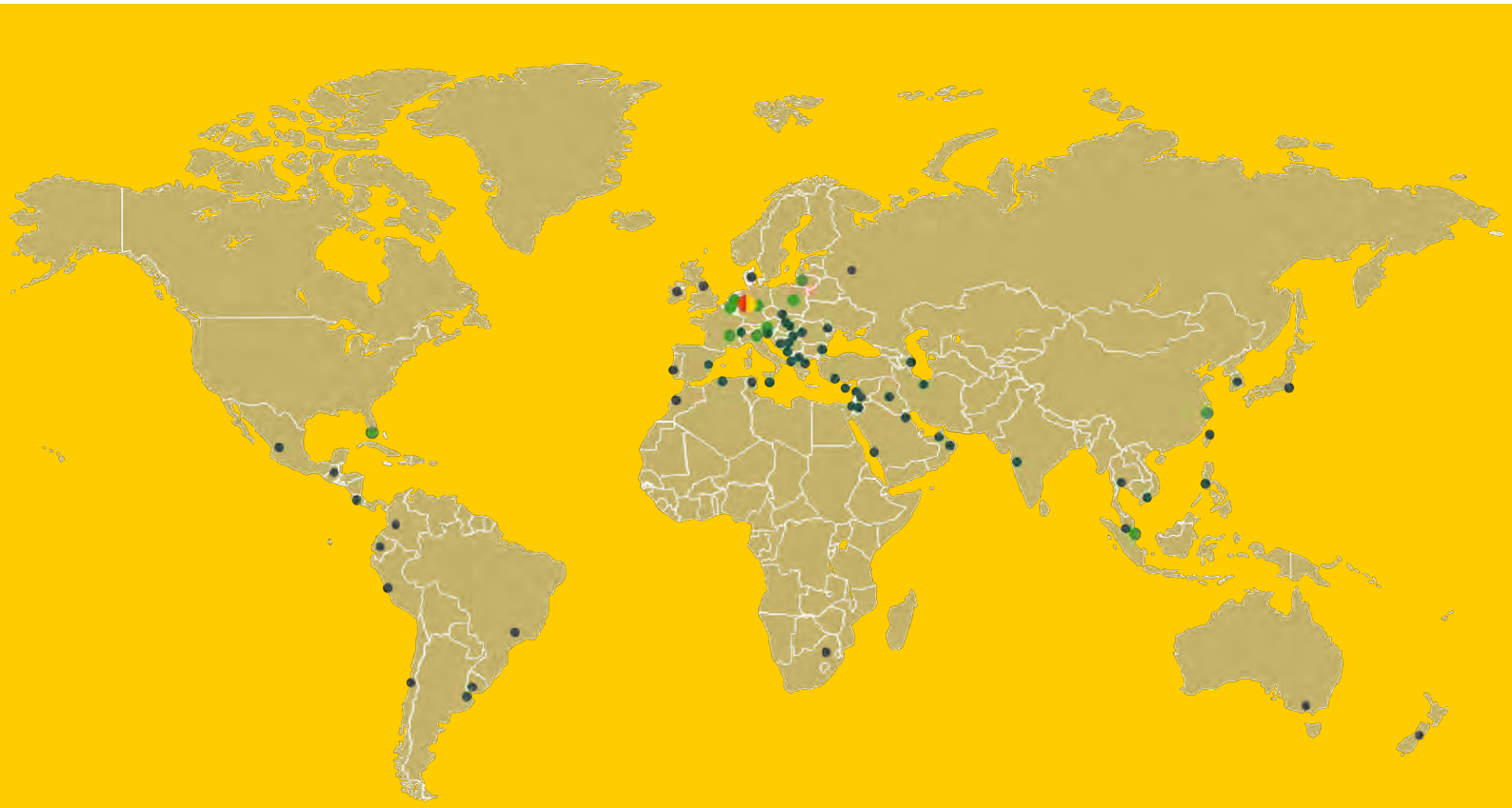
Our sales of growing media extended to more than 70 countries worldwide in the reporting year. In most of these markets, we supply independent sales partners with which we have long-term agreements and which are exclusively responsible for local distribution. Within the central sales markets, our own subsidiaries are in charge of distribution and providing support to sales partners.

Country-specific sales companies:

- Klasmann-Deilmann Benelux B. V.
- Klasmann-Deilmann France S.A.R.L.
- Klasmann-Deilmann Belgium N. V.
- Klasmann-Deilmann Austria GmbH
- Klasmann-Deilmann Italia S.R.L. und (bis Ende 2016) Neuhaus Italia S.R.L.
- Klasmann-Deilmann Polska sp. z o.o.
- Klasmann-Deilmann China Ltd.
- Deutsche Kompost Handelsgesellschaft mbH

Transnational sales companies:

- Western and Eastern Europe: Klasmann-Deilmann Europe GmbH
- North and South Africa: Klasmann-Deilmann France S.A.R.L.
- Asia, Oceania, Middle East: Klasmann-Deilmann Asia Pacific Pte. Ltd.
- North, Central and South America: Klasmann-Deilmann Americas Inc.



4. Renewable resources

Over more than 100 years, we have acquired unparalleled expertise in the management of large expanses of land and in the use of biomass. And we are applying this experience to other economic sectors outside horticulture. As a supplier of renewable energy and resources, we are already well positioned and are continuing our policy of expanding this business unit. Especially in the Baltic region, we have extensive tracts of land for creating and managing short-rotation forestry (SRF) plantations. The sustainability-related benefits of our energy sources derive chiefly from the avoidance of fossil fuels.

Wood as an environmentally sound energy source

102-11, 301:103-1, 301:103-2, 301:103-3

Vor dem Hintergrund des Klimawandels nimmt die Bedeutung alternativer Energieträger zu, die zukünftig zu In view of climate change, increasing importance is being attached to alternative energy sources intended to contribute to a balanced and reliable overall mix of different energies in future years. The objective is to supply both power and heat. Renewable resources such as wood are already firmly established in this context.

Unlike the fossil fuels – petroleum, natural gas and coal – which are finite resources, renewable resources are repeatedly available as they continuously regenerate themselves in specific cycles. Their good climate performance in energy production results:

- from the extent to which they replace fossil fuels;
- from the essentially climate-neutral cycle involving release of CO2 when used as a source of energy, and the recapture of carbon through photosynthesis during growth; and
- from the fact that state-of-the-art and energy-efficient technology is used, as for example in cogeneration plants.

Among the renewable resources especially in demand is forestry and timber industry waste, which is utilised as biogenic solid fuel (in the form of woodchips) in biomass cogeneration plants. Like other players, we want to make more of this opportunity in the future and, in 2016, for the first time, provided substantial services in the close-to-nature forest management sector.

Of increasing importance in the renewable-resources context, and Klasmann-Deilmann's priority in this regard, are our short-rotation forestry (SRF) plantations in which we cultivate fast-growing tree species, generally willows or poplars. We plant cuttings, whose wood growth we harvest after three to four years; the biomass then goes for energy production. Over a period of at least 20 years, growth and harvest cycles repeat at intervals of three to four years. Compared with other energy crops such as maize, the relationship between inputs and yield is especially positive.

In creating and managing SRF sites, we attach importance to:

- preservation of the ecosystem and the hydrological balance;
- maintenance of biological diversity and the scenic quality of the countryside;
- minimisation of risk with regard to pests and disease infestation;
- the utilisation of herbicides and fertilisers only where necessary.

Land use

Cultivating crops as renewable resources exploited for energy purposes is a form of land use that essentially competes with infrastructural and housing development, as well as agricultural food production. This is why we help ensure that existing farmland is used effectively, and that coexistence on an equal footing is achieved between the various interests.

Another challenge consists in harmonising land use with environmental protection and biodiversity. This offers promising opportunities to take advantage of synergies. For example, mitigation and compensatory measures can be beneficially combined with the generation of wood biomass so that, for agricultural land with intensive demands placed on it, extensification is encouraged while the need for materials and energy is satisfied.

Objections

Objections to this land use form relate to its apparent similarity to agricultural monocultures rather than more natural forests. However, the reference scenario for SRF in terms of a comparable, comercially cultivated site is not mature woodland but a field of maize. If the two are compared, the benefits of SRF are greater: most arable land is tilled twice a year, whereas SRF sites are harvested only every three years. And, throughout their overall cycle lasting 21 years, these sites are treated with herbicides only once. Moreover, land previously used for commercial agriculture undergoes considerable ecological upgrading when planted with SRF. For example, as the soil is not cultivated, humus can build up; permanent ground cover substantially reduces erosion; and a permanent root mat leads to improvement in both infiltration and the soil's ability to store water. Moreover, because of the accumulation of both wood and humus, SRF plantations are considered to be carbon sinks whereas conventional agricultural is a net carbon emitter. We shall continuously monitor and evaluate scientifically based objections and assessments in connection with SRF plantations.

Overall, we value and make use of these plantations as a modern, responsible form of land management and means of producing energy sources. On the strength of its environmental, economic and social constants, short-rotation forestry satisfies the criteria for sustainability.

Our activities

Our involvement in this area goes back about 10 years, when considerations were made about our organisation's long-term further development. The desire for appropriate diversification, and for a strategy geared towards sustainability, was initially with our core business – namely commercial horticulture – in mind. However, given our expertise in managing large expanses of land and in biomass utilisation, we soon identified the renewable-energy and -resources segment as a suitable additionally business unit.

Having rapidly entered this market in both Germany and the Baltic region, it was soon evident that, in the longer term, we required both a 'faster'- and a 'slower'-track approach. In the Baltic states, our activities in SRF management and in the sale of environmentally sound fuels are going very well. In Germany, however, this business area is developing at a far slower pace. The reasons are twofold: the extremely high costs of farmland for planting up SRF, and the fact that sustainable management of our own former peat extraction sites is not possible under current legislation. As SRF is not subsidised, unlike the widespread planting of maize as an energy crop, our activities in Germany are severely constrained.

Our goals

Given the current status of our research work, projects aimed at achieving synergies between our energy and horticulture business areas are not practicable. For example, the physical, chemical and biological properties of raw wood materials obtained from SRF mean they lack potential as substrate components. At the same time, our various research projects have considerably improved our know-how on wood as a raw material. The findings are proving valuable in both our energy and horticultural activities.

Our goal is to generate substantial revenue in the energy sector by as early as 2020 and to significantly broaden our base, incorporating this segment, when positioning ourselves as a supplier of sustainable products. As well as our measurable business growth, we are using various KPIs to assess the increasing importance of the energy sector for our corporate group. The figure published in this Sustainability Report expresses the ratio between emissions avoidance (as made possible by our renewable resources) and the greenhouse gases we caused (see 2.4).

Biomass production in the Baltic region

102-6, 102-7, 301-1

We have been carrying out extensive SRF projects in the Baltic region since 2010. The situation is especially good here in terms of production and sales of renewable energy and resources: demand for biomass for energy use is increasing in the Baltic states and the economic environment is far more favourable towards sustainable energy solutions than in Germany.

Alongside woodchips from SRF, fuel peat still contributes to the region's energy mix. The use of both these energy sources is of great importance to Lithuania and Estonia, enabling them to maximise the proportion of domestic resources used in generating heat and power, and in this way to make them independent of gas, oil and coal supplies from abroad.

In 2016, subject to consolidation of already existing areas, we acquired additional agricultural land totalling 217 hectares. This brought the total area earmarked for SRF to 3,131 hectares by year's end. In addition, further SRF sites were planted with cuttings, making a total of just over 2,400 hectares of actively cultivated land by the end of the year. Yield from corporate SRF sites amounted to 17,500 m^3 of woodchips.

The woodchips are marketed through Lithuanian company UAB Klasmann-Deilmann Bioenergy, as are biomass blends of woodchips and fuel peat. The volume sold in 2016 (160,000 m^3) was up year-on-year (2015: 116,000 m^3). To ensure – in terms of raw-materials sourcing – that this positive trend continues, we have entered into supply agreements for additional resources.

Companies that own land used for SRF

Company	Total area SRF
SRC Usenai	447 ha
SRC Kunigiskia	426 ha
SRC Silute	458 ha
SRC Mazonai	402 ha
SRC Vakarai	441 ha
SRC Katyciai	482 ha
ZUK Verdenis	475 ha
Total	3,131 ha

UAB Klasmann-Deilmann Bioenergy also provided close-to-nature forest management services for the first time. Planning was undertaken for several hundred hectares; boundaries were defined, permits obtained and forest infrastructure planned. The subsequently felled timber was processed and marketed.

In August 2016, Klasmann-Deilmann acquired three Latvia-based businesses that are among the leading local suppliers of biomass. As trading companies, they have long-standing connections with the major woodchip producers and to the key customers in the heat- and energy-generating segments. This acquisition has secured us a substantial share of the Latvian biomass market. Unofficially, and for the time being, these three firms have been designated in-house as the 'Energy Group'. They will be amalgamated to form Klasmann-Deilmann Bioenergy SIA in 2017.

Extraction, production and sales of biomass

102-6, 102-7, 301:103-2

The following subsidiaries produce, process and/or sell woodchips and fuel peat:

	Country	Fuel peat extraction	Biomass from SRF	Sales of biomass as an energy source
Klasmann-Deilmann Produktionsgesellschaft Süd mbH	DE		•	
UAB Klasmann-Deilmann Silute	LT		•	
UAB Klasmann-Deilmann Ezerelis	LT	•		
UAB Klasmann-Deilmann Bioenergy	LT			•
Klasmann-Deilmann Bioenergy SIA (in the process of formation)	LV			•

Activities of Klasmann-Deilmann / **Activities of third parties**

5. Nature conservation and climate protection

Thanks to our peatland restoration measures involving the re-wetting of former extraction areas, numerous biotopes are developing that are permanently available for nature conservation and climate protection purposes. To calculate the emissions associated with peat extraction more precisely, we conducted a scientific study whose findings we present here and, for the first time, factor into these calculations. We also publish a climate footprint for which the calculation model was revised. Our goal is to considerably reduce emissions associated with our growing media over the next few years.

5.1 Land use

102-2, 304:103-1, 304:103-2

In 1913, the formation of the Heseper Torfwerk GmbH peat plant laid the foundation for the present-day Klasmann-Deilmann Group. Georg Klasmann was appointed its manager. Within only a few years, the firm had risen to become the leading supplier of animal bedding and also benefited the economic development of the Emsland region by constructing a fuel peat-fired power station. In the aftermath of the Second World War, the company was instrumental in achieving the goal – defined under the Marshall Plan – of making agriculture and housing development possible on a large scale in north-western Germany by draining peatland. In 1953, Georg Klasmann received Germany's Federal Cross of Merit for his efforts. In those decades peat extraction was expressly desired politically, and socially accepted.

With the growing environmental consciousness in the 1970s, a fundamental change was clearly on the way. In Lower Saxony, peat production legislation came into force in 1981 (see NIEDERSÄCHSISCHER MINISTER FÜR ERNÄHRUNG, LANDWIRTSCHAFT UND FORSTEN 1981). Our company adapted to these new circumstances and, since then, has used only peatlands that are already drained or degraded to extract raw peat materials; this included land either owned or leased. Pristine bogs have been designated protection areas in Germany and are left untouched by us. After peat extraction has ceased, we initiate rehabilitation measures at our extraction sites in line with official requirements. We also apply this principle with our activities in the Baltic region and Ireland. However, as we continue to extract and process peat, our organisation must help strike a balance between peatland protection and responsible usage of this raw material in commercial horticulture.

Voluntary commitment to the Code of Practice

102-11, 102-12, 102-16, 304:103-2

In its management of peatlands, Klasmann-Deilmann has since 2009 – voluntarily – adhered to the applicable Code of Practice of the former European Peat and Growing Media Association (EPAGMA), whose successor organisation as of 2016 is the European lobby group Growing Media Europe. This code (see EPAGMA 2011) specifies rules governing choice of extraction areas, method of extraction, and peatland restoration once these activities have ceased. The voluntary commitments include:

- complying with locally applicable legislation;
- exclusive use of already drained or degraded peatland;
- minimising emissions of dust and noise;
- avoiding soil contamination, and environmentally sound disposal of waste;
- regulating self-heating in storage stacks;
- including the local population in the overall process, and giving stakeholders a means of providing feedback;
- preserving biological diversity and ecosystem functions during after-use once raw-material extraction ceases;
- responsibly managing extraction sites, including management systems with risk assessment relating to accidents, emissions and health aspects, as well as training on safe working practices.

At international level, our land management and our raw-material extraction comply with Responsible Peatland Management guidelines laid down by the International Peatland Society (IPS; see INTERNATIONAL PEATLAND SOCIETY 2010).

RPP-certified extraction areas

102-11, 102-12, 304:103-2, 304:103-3

The European certification system 'Responsibly Produced Peat' (RPP) was established in 2013 with the following aims:

- Leaving natural peatlands with high nature conservation and climate protection value untouched, and preserving them over the long term;
- Ensuring the long-term availability of peat as a valuable growing-media constituents;
- Increasing the rate of peat production from degraded peatlands so that restoration measures can be started as early as possible.

RPP aspires to consistently achieve a workable balance between the interests of the substrate industry and those of nature conservation and climate protection. The aim is to establish the RPP label as a prestigious, reliable and recognised environmental standard similar to PEFC and FSC.

In the light of this, our intention is to obtain RPP certification for all of our extraction areas, and we are committed to enhancing the system. For example, we advocate incorporation of other important constituents for substrates into the RPP management system, in order that their ecological footprint can be evaluated as well in the future.

In 2016, RPP awarded us our first certifications for a number of sites in Germany and Lithuania. RPP describes other successes on its website (see RPP 2017).

Measures following cessation of peat extraction

304-3

Depending on the method used, peat production on a given site may continue for several decades. After raw-material extraction has ceased, sites remain covered with residual peat to at least the legally required depth. There are essentially four options for their subsequent usage, and which of these is implemented in a given case is stipulated by the relevant authorities in permit documents issued prior to commencement of extraction activities.

The most important form of after-use in Germany is re-wetting. Its aim is to establish peat moss (*Sphagnum*) and other typical peatland plants, such as cotton grass. In re-wetted areas, the presence of standing water will lead to the former hydrological conditions being restored, resulting in bog-like vegetation (i.e. rehabilitation) or even typical bogland vegetation (i.e. regeneration), and these sites can become CO_2 sinks when the peat body begins to grow again. In this way, a re-wetted area can contribute to the biodiversity typical of peatland – in this case, to the variety of ecosystems present – and again become a characteristic feature of the landscape.

Because local geological and hydrological situations differ, not all sites can be returned to nature in this way once peat extraction comes to an end. Instead, some former production areas are afforested or prepared for agricultural after-use. In some cases, buffer zones are also established between differently utilised areas and left to the process of natural succession.

Responsibility for implementing these measures generally rests with Klasmann-Deilmann. Over a several-year period, the effectiveness of measures carried out is monitored by the relevant authorities and – in line with its voluntary commitment to the code of practice – by Klasmann Deilmann itself. In certain cases, our after-use projects go beyond the official requirements, a major reason for this being to apply new knowledge of how to restore peatlands.

Among the recalculations we have made in recent years in connection with our digitisation projects are revised measurements of the area of our land resources. Based on improved data we can now state that we have, since 1960, re-wetted, afforested or made available for agricultural after-use a total of 8,005 hectares.

	2016	2015	2014	2013
Re-wetting	3,831 ha	3,700 ha	3,422 ha	3,317 ha
Afforestation	194 ha	194 ha	194 ha	192 ha
Agricultural after-use	3,980 ha	3,941 ha	3,598 ha	3,557 ha
Total restored peat-extraction sites	8,005 ha	7,835 ha	7,214 ha	7,066 ha

Peatland restoration measures in Ireland and the Baltic states

102-12, 304:103-2, 304:103-3

In 2016, and for the first time, we re-wetted a 37-hectare former extraction site in Lithuania and returned this area to the state. Initial projects aimed at rehabilitating former extraction sites are also in preparation at other locations in the Baltic region and Ireland. Here, we will seek to put into practice innovative approaches to peatland restoration that provide additional environmental and climate benefits, such as *Sphagnum* farming. At the same time, we are tailoring our practice to local conditions and applicable local laws. Klasmann-Deilmann's locally responsible subsidiaries are liaising closely with the relevant authorities on this matter.

Sphagnum-farming project

304:103-2

In close collaboration with the University of Hanover and the Thünen Institute in Braunschweig, an extensive *Sphagnum*-farming project has been underway since the summer of 2015. By the end of 2016, a total of 10 hectares of former extraction areas had been prepared for the cultivation of peat moss on black peat. The special moss required for the project – namely, moss obtained from peat hummocks – was removed from semi-natural moorland and then distributed over already re-wetted sites or sites earmarked for re-wetting. This necessitated our obtaining full approval from the relevant authorities to ensure that the project meets the highest environmental standards.

The aim of this effort, funded with resources from the federal state of Lower Saxony, is to achieve *Sphagnum* growth that is reproducible under specific conditions. This moss could, in the future, be primarily used in the restoration of former peat extraction sites, provided that the high costs involved are apportioned appropriately. For this purpose, a '*Sphagnum* bank' is being developed on part of the area as a source of peat mosses for future sites under restoration. The rest of the area will serve as a 'laboratory' in which biomass growth and the resistance of the various cultivated moss species are to be tested. Any changes over time in biodiversity on the sites in question, and in greenhouse gas emissions, will be scientifically investigated by the University of Hanover and the Thünen Institute. This project is, concurrently, sharing experience with the Canadian Sphagnum Peat Moss Association (CSPMA) which is engaged in similar efforts. The International Peatland Society (IPS) is also involved, pooling the findings of such projects and subjecting them to further scientific analysis.

The project's original aim of developing a renewable resource for substrate production will, as of 2017, not be pursued for the time being. Although trials have now confirmed that peat moss is indeed very much suitable as a substrate constituent, other key issues must first be resolved concerning:

- the need to increase yields;
- the availability of extensive tracts of land;
- the sterilisation of harvested raw materials; and
- profitability and eligibility for funding.

Our present assumption is that *Sphagnum* farming will not at this stage contribute significantly in terms of making alternative substrate constituents available. At the same time, we are following up a number of other options for commercial use of peat moss that meet sustainability criteria.

Water management

304:103-2

The manufacture of growing media does not require unusually large quantities of water: its consumption in the context of production is of relatively minor importance in terms of our sustainability-related activities. Nevertheless, our water management practices adhere to locally applicable legal provisions and are geared towards consuming resources as sparingly as possible and towards environmentally sound use.

However, there is appreciable disturbance of the hydrological balance of an intact peatland. The peat moss that forms the main body of a bog can absorb many times its own weight. Stored water is lost during drainage in preparation for peat extraction, and also during land use. Klasmann-Deilmann obtains raw peat materials solely from sites drained decades beforehand, and such interventions have been consigned to history. During the course of peatland restoration, most of the now-depleted areas are re-wetted; in this way, they progressively recover their water storage function.

5.2 Emissions from peat extraction

305:103-1

For the last 10 years there has been an overlap between, on the one hand, the discussion on emissions from the extraction and usage of peat and, on the other, the conservation-related debate that has been continuing since the 1970s on the preservation of peatland. Experts agree that producing and using peat for horticultural purposes causes significant emissions. Previously, however, scientific knowledge was (for the most part) available only from measurements in peatlands that are natural, used for agriculture or under restoration. Until recently, there were no direct measurements of greenhouse gases from sites actively used for peat extraction. Therefore, statements on the climate impact of peat extraction areas had to be derived from outcomes of monitoring on peatlands used for other purposes, and from model assumptions. Our climate footprints published in recent years are also based on the best possible assumptions inferred from available studies.

In-house measurements

305:103-2

In view of this, we initiated a study on emissions derived from peat extraction and, between February 2015 and February 2017, conducted greenhouse gas measurements on our white-peat and black-peat extraction areas. The aim was to close the existing gap in the scientific data and to provide reliable information about emissions from the extraction and use of peat. We were ably assisted, in both the monitoring campaigns and in drawing up the footprint, by the Cologne-based Meo Carbon Solutions GmbH. On completion of the first 12 months, and after the entire project had been concluded and evaluated, we discussed our approach and results with experts from Meo, the Müncheberg-based Leibniz Centre for Agricultural Landscape Research (ZALF), the regional State Agency for Mining, Energy and Geology (LBEG) in Hanover, the German Research Centre for Geosciences (GFZ) in Potsdam, and the Kiel Institute for the World Economy (IFW). It was confirmed that measurements and footprinting activities in the first year yielded valid outcomes and that, since a second year of monitoring had been completed, these also meet scientific criteria.

Measurement set-up

To carry out cumulative global-warming impact assessments for the trace gases carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), we used the chamber-based measuring technique that was employed in the BMBF study ‘Klimaschutz durch Moorschutz’ (‘Combating Climate Change by Protecting Peatlands’; see DRÖSLER 2011) and is also used in other scientific studies and greenhouse gas measurements. Monitoring using two manual sampling units took place on a black-peat extraction site in Germany and a white-peat extraction area in Lithuania. These sites were chosen such that the results reflect the corporate situation as representatively as possible in terms of peat grade, climatic conditions, etc. Greenhouse gas measurements were, for the most part, carried out on a 14-day cycle using repeat determinations from five spatially separate plots. For each site, a set of chambers consisting of one opaque and one translucent chamber was available for CO_2 monitoring. The measurements were carried out on site using an LI-820 infrared gas analyser manufactured by LI-COR. CH_4 and N_20 samples were taken and analysed in the lab using gas chromatography. The outcome, incorporated into a cumulative footprinting model, then formed the basis for calculating average emission levels from peat extraction.

Outcome

In the calculation of our carbon footprint, the approach followed thus far is that set out in the BMBF report 'Klimaschutz durch Moorschutz', according to which the level of emissions depends on the water table depth in a given case (see DRÖSLER 2011, pp. 7-9). On this basis, we applied an average emission value of 10.73 t CO_2e per hectare, per annum in order to calculate emissions from peat and substrates.

However, the results of our own emissions measurements tell a different story. On this basis, the average emissions in CO_2e ha^{-1} a^{-1} are considerably lower than was hitherto assumed. The mean emission levels determined for the black-peat extraction area used for monitoring in Germany are 3.13 t CO_2e ha^{-1} a^{-1}. On the white-peat extraction site in Lithuania, monitoring revealed average emissions of 8.05 t CO_2e ha^{-1} a^{-1}.

Thus, mineralisation of both black and white peat, and associated greenhouse gas emissions, occurred to a lesser extent than had been assumed in the previous greenhouse gas footprint.

It follows that we have, thus far, overstated our emissions from peat extraction and usage. We will henceforth be calculating our climate footprint using the lower values from our study. Details of this investigation will be published in specialist media in 2017.

Footprints based on 24 months of direct greenhouse gas measurements

Tracer gas	Black peat Sedelsberg, Deutschland	White peat Silute, Litauen
CH_4	0.00054 t CO_2e ha^{-1} a^{-1}	0.0606 t CO_2e ha^{-1} a^{-1}
N_2O	0.28 t CO_2e ha^{-1} a^{-1}	0.79 t CO_2e ha^{-1} a^{-1}
CO_2	2.85 t CO_2e ha^{-1} a^{-1}	7.20 t CO_2e ha^{-1} a^{-1}
Ø	3.13 t CO_2e ha^{-1} a^{-1}	8.05 t CO_2e ha^{-1} a^{-1}

5.3 Climate footprint for 2016

305:103-1, 102-48, 102-49

The climate goals agreed at COP 21, the 21st UN convention on climate change held in Paris, include a restriction of global warming to 1.5°C above pre-industrial levels. Calculation of our climate footprints for 2013, 2014 and 2015 allowed us to initially gauge the responsibility our organisation has in this context. Our climate footprint for 2016 is now based on even more rigorous underlying source data.

In recent years, we have invested more heavily in the digitisation of our corporate business processes and in the collection and analysis of data. Furthermore, our study to determine emissions from peat extraction has been successfully concluded with the provision of more reliable emission factors. This enables us to further improve the basis of our climate footprint calculations and, once again, to also refine the calculation itself. In view of this, we have drawn up our climate footprint for 2016 on a revised calculation model and, on this foundation, also updated the climate footprint calculation for the 'base year', i.e. 2013.

Our corporate and product carbon footprints were calculated by Cologne-based Meo Carbon Solutions GmbH. The carbon footprint was audited and verified by SGS United Kingdom Ltd. (Cheshire, UK), with regard to its assumptions, function and internal coherence, in accordance with the ISO 14064-1 standard and at a limited level of assurance. The subject matter of the internal and external audits conducted in this context included quality-management aspects associated with the data collection process. As before, we provided the relevant employees from the various parts of the company with in-depth training for this purpose.

Taking into account all climate-related factors along the value chain 'from raw-material extraction to the factory gate, including transport', our corporate climate footprint for 2016 reveals emissions – converted into CO_2 equivalents (CO_2e) – of 208,929 t CO_2e ('base year' 2013: 204,144 t CO_2e). At a turnover of EUR 185.6 million and an average headcount of 938 (FTE), this yielded a figure for the reporting year of 1.12 kg of CO_2 per euro of turnover*, and 222.74 t CO_2e for each employee*. With the total volume of growing media and raw materials sold standing at 3.549 million m^3, this translates into an average carbon footprint (expressed per cubic metre of substrate, per annum) of 58.88 kg of CO_2e m^3 *.

Emissions in CO_2e	2016	** 2013
t CO_2e at corporate level	208,929	204,144
t CO_2e per employee *	222.74	223.11
kg CO_2e per EUR of turnover *	1.12	1.28
kg CO_2e per m^3 of substrate	58.88	63.27

* Figures not verified by SGS

** Revised figures from the Sustainability Report for 2013, excluding emissions from sales companies

Comments on the carbon footprint for 2016

305:103-1, 102-49

The 'base year' for calculating our carbon footprint is 2013. Our corporate carbon footprint includes all emissions arising within the system boundary 'cradle to gate, plus transport to customers'. We are incorporating the Logistics division as it is a major factor in our turnover. The end-of-life phase is not factored into the carbon footprint.

This means that a distinction is made between emissions attributed to our company and those attributed to downstream users such as nurseries or retail consumers. We are aware that this means a considerable proportion of greenhouse gases are not included in the climate footprint. The rationale behind this decision is that, in the same way that an oil producer is not responsible for a car driver's petrol consumption, a substrate producer cannot be held to account for the way a product is used by a customer. At product level, however, both footprints – with and without end use – are disclosed in order to provide (for instance) a nursery with reliable information on how to calculate its own carbon footprint.

In accordance with the GRI's materiality principle, we have deferred to a later date the calculation of emissions from travel in order that we can develop a uniform Group-wide standard.

Emission factors and other factors not derived from calculations based on corporate data were, as before, extracted from the 'ecoinvent.org', 'entfernung.himmera.com' or 'searates.com' databases, or from the 'Quantis study' (see QUANTIS, EPAGMA 2011). In calculating emissions from the extraction and use of peat, we will henceforth be relying on the outcome of the study described under 6.2.

Recalculation of the climate footprint

102-49

Aufgrund der verbesserten Datenbasis haben wir die Berechnungsgrundlagen für unsere Klimabilanz an folgenden Punkten angepasst:

Additional emissions

- Business growth, with rising production and sales volumes, led to an increase in our emissions, as did the expansion of our activities in the renewable-resources sector.
- Previously, only dry bulk density of our black peats and white peats was factored into our internal transport of raw materials. The revised calculation model now incorporates relevant water content.
- Improved data collection at our production sites resulted in revised disclosures on bulking substrate constituents processed there.
- A new item for 2016 is deliveries of raw materials by a contractually bound but independent producer in the Baltic region; these are fully included in our carbon footprint.
- In connection with the approved interim use of a former extraction area in Lithuania as a short-rotation forestry (SRF) plantation, additional emissions attributable to its management have occurred since 2016.
- Emissions caused by transport from production facilities to our transhipment points abroad are now taken into account in greater depth.

Reduced emissions

- Land-related emissions are lower due to incorporation of the outcome of our study on emissions from peat extraction.
- At various locations, rehabilitation measures were commenced following cessation of peat extraction or sites were returned to the lessors. At the same time, extraction on a smaller scale began in new areas. On balance, land management led to a reduction in our emissions.
- The calculation of emissions from our re-wetted sites was reviewed in the light of the emissions-monitoring outcome. Average water depth for re-wetted areas had previously been slightly overestimated and is corrected from -0.05 m to a more conservative figure, –0.08 m. In the course of re-wetting, reduction in emissions is initially only slight, to 2.25 t CO_2e ha^{-1} a^{-1}. A re-wetted site reaches a carbon equilibrium state after around 10 years. CO_2 and CH_4 emissions are offset by the carbon uptake of the peat-forming vegetation. For land re-wetted more than 10 years previously, therefore, an emission factor of 0.1 t CO_2e ha^{-1} a^{-1} is applied.
- Emissions relating to traded raw materials were corrected as, in connection with purchasing and marketing, an erroneous double entry occurred during footprinting calculations.
- Specific volumetric weights given for raw peat materials processed in the Baltic region were previously those for black peat, meaning they were overstated. The lower weights now included for light-coloured raw materials have a positive impact on transport-related emissions.
- Certified ‘eco-compatible rail logistics’ enabled our sales company in Italy to avoid emissions from the transport of substrates.
- The Whim Bog site in Scotland was taken into account in the 2016 carbon footprint for the first time. Only part of the peatlands there was managed by the then Klasmann Werke GmbH in the 1970s and 1980s and a large part of this was sold later. Since then, only a designated protected area, a Site of Special Scientific Interest (SSSI) 78 hectares in size, has been in our ownership.
- The 2016 carbon footprint is the first time the Rehden-Neuhaus site has been included. Our former ‘Neuhaus’ subsidiary had extracted raw peat materials there between 1955 and 1996. The site was prepared and re-wetted by us under 1997 – 1999 land consolidation arrangements. A 197-hectare site in Rehden’s Geestmoor bogland area is still one of our landholdings.

Carbon footprint for 2016

305-4

	Emission sources	2016 in t CO_2e	% of total footprint	* 2013 in t CO_2e
1.	Extraction areas: Reference scenarios	- 110,124	-52.71	- 135,574
2.	Extraction areas: Peat extraction, interim storage	145,785	69.78	157,171
3.	Extraction areas: After-use scenarios	25,273	12.10	45,156
4.	Extraction areas: End use 1/100	6,390	3.06	8,346
	Extraction areas: Subtotal for emissions	67,325	32.22	75,099
5.	Energy consumption: Extraction areas	17,739	8.49	18,160
6.	Energy consumption: Other sites	1,966	0.94	1,532
7.	Transport: Raw materials, internal	18,453	8.83	16,704
8.	Transport: Raw materials and substrates to customers	51,107	24.46	49,055
9.	External suppliers: Peat inclusive of transport	14,566	6.97	11,753
10.	External suppliers: Packaging materials	5,401	2.59	4,657
11.	Alternative substrate constituents and additives inclusive of transport	30,625	14.66	26,808
12.	Other areas of activity (SRF, forest, photovoltaic installations, woodchip heating)	1,747	0.84	375
	Carbon footprint of overall company	208,929	100.00 %	204,144
	Total quantity Substrates, raw materials incl. trading (m^3)	3,548,594 m^3		3,226,356 m^3
	Carbon footprint per m^3 of substrate	58.88 kg CO_2e		63.27 kg CO_2e

* Figures revised from Sustainability Report 2013

Explanatory notes on the structure of our climate footprint

Extraction areas

1. **Reference scenarios:** Before raw-material extraction began, drained bogs were already emitting trace gases (in the form of CO_2, N_2O or CH_4) that affect the climate. Even without peat extraction, the sites would – depending on land use – have continued to emit these gases. Following this line of reasoning, the emissions pertaining to this time-based reference scenario have been factored out of the company's carbon footprint.
2. **Peat extraction, interim storage:** The emissions stated here are those from our extraction and usage of peat, examples being actively worked peat extraction sites, peat storage in stacks and the peat used in growing media.
3. **After-use scenarios:** This gives the emissions that arise after peat harvesting ceases – in relation to peatland restoration, for instance – before the area stores greenhouse gases once more.
4. **End use 1/100:** The emissions disclosed here are caused by degradation of peat as a raw material or in substrates. In respect of this, we convert emission totals into CO2 equivalents with a global-warming potential (GWP) for the next 100 years (GWP100). In our corporate carbon footprint, a resulting aggregate mean value for the reporting year is adopted, equivalent to 1% of the GWP100. Emissions arising during the products' usage or end-of-life stage are excluded. This means that a distinction is made between emissions attributed to our company and those attributed to downstream users such as nurseries or retail consumers.

Energy consumption

5. **Extraction sites:** This line refers to the emissions of our lead company and our subsidiaries that own peat extraction operations, and primarily includes consumption of diesel, heating oil, electricity, natural gas and woodchips.
6. **Other sites:** The figures given here are total emissions from our production and sales companies which, particularly in the administrative buildings, result from consumption of heating oil, electricity, natural gas and woodchips.

Transport

7. **Raw materials, internal:** This line states the emissions resulting from transport of raw materials within the Klasmann-Deilmann Group.
8. **Raw materials and substrates to customers:** These emissions are those originating from transport to the customer worldwide. A detailed breakdown was provided for transport by road, container, water and rail.

Not included here are internal and customer-related empty runs, as the hauliers and transport providers whose services are enlisted are – in accordance with relevant joint agreements – responsible for providing onward and return transport. Transport arranged by our customers themselves, and from which we generate no turnover, is not incorporated either.

External suppliers

9. **Peat inclusive of transport:** Emissions from the extraction and transport of bought-in peat are disclosed here. As we use these raw materials, the emissions are attributed to us.
10. **Packaging materials:** This line gives the total emissions resulting from usage of packaging film, paper, cardboard and pallets.

Further sources of emissions

11. **Alternative substrate constituents and additives inclusive of transport:** Emissions stated in this line result chiefly from production of our own alternative substrate constituents, TerrAktiv green compost and GreenFibre wood fibre. This figure also incorporates those emissions generated by our suppliers through production and transport of additives such as fertiliser and lime. As we buy and use these products, these emissions are attributed to us.
12. **Other areas of activity:** The emissions disclosed here are those resulting from the establishment and maintenance of SRF plantations, forest, photovoltaic installations and woodchip heating systems. Over and above this, no CO_2 sinks or reservoirs exist that would need to be included in the climate footprint; neither do we operate any of the same.

Classification of emissions into scopes

305-1, 305-2, 305-3

The greenhouse gas calculator classifies emissions into three categories called 'scopes' in conformity with ISO 14064 and the requirements of the Kyoto Protocol.

- Scope 1 includes all emissions which are directly generated from combustion processes in the company's own facilities.
- Scope 2 covers emissions relating to purchased energy such as electricity, or heat energy sources such as woodchips.
- Scope 3 refers to emissions from third-party services and purchased preliminary services.

The 'base year' is 2013. Global-warming potential is calculated over a 100-year interval. The basis of calculations for the Scope 2 energy mix is as follows: the EU (UBA) fuel mix, the IT, PL, MY, US, FR, AT and CH fuel mixes (EcoInvent 3.3), district heating (EcoInvent 3.3) and green electricity (certified as being from hydropower in Norway, EcoInvent 3.3).

Emission sources by scope	2016 in t CO_2e	2013 in t CO_2e
Carbon footprint: Scope 1	77,243	81,890
Carbon footprint: Scope 2	3,368	4,319
Carbon footprint: Scope 3	128,318	117,935

‘Positive’ footprint for 2015

305-1

Renewable-energy and -resources activities are to be considerably expanded as a business area in the coming years. They also contribute to emissions avoidance. Under the requirements of the ISO 14064 standard, however, these positive effects are disclosed separately from the climate footprint. The chief reason for this is that the bulk of the energy generated in this way will not be consumed by Klasmann-Deilmann itself, but fed into the grid and sold. In addition to the carbon footprint for 2016, a ‘positive’ carbon footprint has therefore also been drawn up (i.e. one that takes only carbon-positive measures into account). It discloses how many emissions from fossil energy sources such as coal, oil and natural gas are avoided by usage of renewable energy from short-rotation forestry (SRF) and photovoltaic installations, and captured by forest resources.

- The woodchips produced at our SRF sites, which are used for energy production in the Baltic region, are included for the first time.
- Under our cooperative arrangement with the organisation Plant for the Planet (PftP), 73,951 trees were donated. The resulting amount of carbon stored per tree is put by PftP at 10 kg CO_2 a-1 over an average life of 10 years.
- In the carbon footprint for 2015, one emissions avoidance item (use of woodchips as an energy source) was counted double. This error was corrected in the footprint for 2016.
- Biomass produced by third parties that is subsequently used as an energy source is disclosed separately as ‘biologically fixed carbon’. In our case, this is chiefly in the form of woodchips.

Emissions avoidance	2016 in t CO_2e	2013 in t CO_2e
Use and generation of renewable energy and of forest resources	35,734	11,193
Biologically fixed carbon	11.3	5.1

Product carbon footprint

The product carbon footprint (PCF) we publish differs from the corporate carbon footprint (CCF) in that the former includes the 'cradle to grave' system boundary, i.e. one that incorporates both the use phase and the 'end of life' of our substrates. This approach results from dialogue with stakeholders from the scientific and environmental fields, who advised us to utilise this presentation format.

Based on this breakdown, the bulk of the emissions are generated outside our system boundaries. We regard this as affirmation of our responsibility to enhance our range of substrates with a view to producing fewer greenhouse gases at every link of the value and consumption chains. This is the rationale behind measures that are an integral part of our strategy, such as increasing the proportion of alternative constituents in our substrate blends to 15% by volume.

With reference to a recipe database, the data for the corporate carbon footprint can be converted for individual products, creating PCFs. By way of example, the table below gives the climate footprints of selected growing media for 2016 within the 'cradle to gate' and 'cradle to grave' system boundaries.

Recipe	Designation	Type	Emissions 2016: cradle to gate	Emissions 2016 cradle to grave
70413	**Base substrate**	White-peat substrate	51.3	198.9
70002	**Potgrond P**	Black-peat substrate	16.8	236.0
70062	**KKS organic tray substrate**	Black-peat / white-peat blend with green compost	55.4	195.0
70080	**Seedling substrate**	Black-peat / white-peat blend with coco pith	39.3	171.8
70698	**BP substrate**	Black-peat / white-peat blend with wood fibre	26.7	158.7

Figures in kg CO_2e/m^3

5.4 Energy management

305:103-2, 305:103-3

Among the measures by which we wish to lower our emissions are those aimed at reducing our energy needs. To identify potential here, energy consumption is monitored and evaluated on an ongoing basis. For this purpose, we use the automated recording and processing system that forms part of our energy management scheme. Furthermore, to increase the energy efficiency of our facilities and machinery, we keep abreast of technical developments in this area and apply them whenever it is possible and expedient to do so.

Our organisation's overall heating requirements are continuing to decrease thanks to ongoing improvements in heating technology and insulation standards. At our Geeste site, power consumption per unit of packaged goods produced was reduced year-on-year in 2016. Savings associated with loose goods were achieved in Vehnemoor in 2016. Our German sites have been obtaining electricity from hydropower since 2015 (4,500,000 kWh in total). Additional savings are achieved by optimising lighting and compressed-air generation. Diesel consumption decreased due to the lower quantities harvested. Compared with the previous year, our energy consumption in 2016 was down slightly, but was higher than earlier levels due to business growth.

Energy consumption by use	2016	+/-	2013
Energy consumption for extraction sites (diesel, electricity)	17,739	- 2.3%	18,160
Internal peat transport (diesel)	18,453	+ 10.5%	16,704
Energy consumption for buildings (electricity, gas)	1,966	+ 28.3%	1,532
Packaging material (foil)	5,401	+ 16.0%	4,657

Figures in t CO_2e for the Group as a whole

Energy consumption by energy source	2016	+/-	2015	2014	2013
Electricity	38,397.6	+ 12.5%	34,113.6	31,420.8	30,499.2
Gas	11,977.2	- 1.4%	12,149.8	10,713.6	11,966.4
Diesel	169,851.6	- 3.0%	175,078.8	169,743	156,898.8

Figures in gigajoules for the Group as a whole

Energy consumption (conventional and renewable)	2016	+/-	2015	2014	2013
Total energy consumption	224,492	- 0.4%	225,331	218,219	210,580
Of which from renewable energy	4,266	+ 8.2%	3,944	2,873	3,979

Consumption in gigajoules for the Group as a whole

5.5 Logistics

305:103-2, 305:103-3

Thanks to long-standing relations with dependable national and international haulage companies and transport service providers, Klasmann-Deilmann can guarantee that all orders are processed reliably and quickly. We utilise rail and shipping wherever these are feasible and efficient options. In 2016, Klasmann-Deilmann used:

– 40,000 lorries;
– 2,300 railway cars;
– 100 barges/ships; and
– 8,200 (40-ft) containers which are carried by ship on the main haul of the journey and by truck to and from the ports.

Responsible logistics

Our growing media and raw peat materials are relatively bulky and heavy. The consignees are primarily horticultural businesses in around 70 countries on five continents. This transport causes environmental impact, which is why the Logistics division is playing an increasingly important and responsible role in terms of sustainability. A fundamental principle we follow is 'water before rail before road'. In implementing this principle, however, we repeatedly come up against the limits of what is feasible and commercially viable.

Unfortunately, rail transport still often proves uneconomical compared with road haulage, a major factor being high transhipment costs. With regard to movement of goods between Western and Eastern Europe, another problem is that of rail gauge incompatibility as this means there are no direct rail links. Nevertheless, we endeavour to ensure a large proportion of our freight consignments are carried on rail, especially since our production company Klasmann-Deilmann Produktionsgesellschaft Nord mbH has its own connection to the Deutsche Bahn rail network.

Within Western Europe, we also make use of the opportunities provided by domestic waterway shipping. Water routes needed for a comparable volume of trade in goods with Eastern Europe are lacking, so that chartering seagoing vessels is the only realistic alternative. Whereas sea transport is a good solution for raw materials and loose materials, the loss ratio associated with loading pallets onto such vessels is excessively high. For deliveries overseas, we make exclusive use of container transport.

Overall, road transport is essential to us, whether for direct deliveries to our customers in Europe or as a component of combined (road/water/road) transport. Moreover, many customer orders involve very short delivery times – in some cases next-day delivery – and these can only be met using road haulage.

Nevertheless, we strive to keep the environmental impact of our logistics operations as low as possible. The measures we are continuously pursuing in this regard include the reduction of internal transport between our various production sites. Setting up intermediate storage facilities in selected European target regions, too, enabled us to switch to rail for a significant proportion of the annual volume transported. As logistics-related activities account for a considerable share of our emissions, we will in the future intensify our search for solutions and alternatives still further.

5.6 Emissions reduction measures

305:103-2, 305:103-3

Based on our carbon footprint, we set ourselves the goal of taking action to reduce or offset the emissions caused by our company.

The revision of our climate footprint has shifted the weighting of our emissions sources, with internal transport and externally provided transport services responsible for one-third of our greenhouse gases. This means that transport will, in the future, be assigned greater priority in our emissions reduction measures. The weight of our raw materials and growing media is one starting point: the lighter these materials, the greater the volumes that can be carried in each transport unit. Our in-house projects aimed at reducing raw-material and product weight have by now achieved substantial successes resulting in lower emissions from transport. At the same time, we are aware that transport is an area which offers comparatively little scope for cutting emissions. To the extent that this is possible, we prefer more environmentally friendly means of transport such as rail and water. Fundamentally, however, there will be no meaningful potential for reducing emissions from these activities until more sustainable transport options become internationally competitive.

Another large part of our emissions still originates from extraction sites. Henceforth, therefore, we will be implementing our rehabilitation measures following cessation of peat production at a higher rate. Other options for reducing greenhouse gases from land use are being considered.

The use of peat-substitute bulking ingredients in our growing media has a positive impact on our carbon footprint, especially at product level. We are therefore aiming to increase the proportion of alternative constituents to 15% (by volume) of the annual production total by 2020. This means we will be able to provide our customers with substrates that cause fewer emissions.

Other action includes our measures relating to renewable resources - either to avoid the use of fossil fuels or enable direct carbon capture. These include photovoltaic installations, afforestation, the management of woodland and short-rotation (SRF) plantations, as well as production of heat energy from corporate-owned SRF plantations. The greater part of the energy sources produced and energy generated in this way are not consumed by Klasmann-Deilmann itself, but fed into the grid and sold. They have no direct impact on our climate footprint but, with a ‘positive’ footprint, help counterbalance the emissions we cause.

6. Employees

We attach great importance to having highly qualified and capable employees. Time and again, they play a crucial role in moving us forward in terms of corporate sustainability and customer satisfaction. We know that our commercial success depends on their commitment, motivation and skills. Our priorities therefore include individually tailored training and professional development, a corporate culture that encourages innovation, and cultivating a way of relating in which – out of the diversity of opinions and ideas – we pave the best way forward.

Scope of reporting

The following remarks refer to all of the Klasmann-Deilmann Group's employees. Thus far, personnel management has been most strongly developed at our German sites. A systematic, global approach to these activities will place personnel policies on an increasingly international and integrated footing.

Professional employer branding

We want our employees to enjoy working in our company, and our low staff turnover shows that a lot of them do. Many of our employees have been with us for several decades.

In the years ahead, a generational shift is coming for numerous positions – and this includes key posts within Klasmann-Deilmann. When filling these positions, our policy is to focus on our own young employees. Our business growth means that, particularly for new business units and employee roles, we need additional expertise that we wish to develop internally and enrich with new recruits from outside.

Demographic change and the growing skills shortage necessitate the intensifying of employer-branding measures. We are an attractive employer and as such have a presence at both regional and national trade and job fairs, aiming to recruit qualified young people and, increasingly, female executives to our organisation. Additionally, we have brought out information publications for those interested in vocational training with us, and for skilled professionals. Our website features a broad-based portal informing applicants, including international job-seekers, about careers opportunities within our company. Applications can be made online. Profiles in relevant Internet-based business platforms have been updated. We also have a referral reward scheme in order to encourage our employees to recommend someone they know for a vacancy.

A wide range of opportunities for training, professional development and scholarships

We stepped up our investment in the skilled workers of tomorrow. In this connection, dual training programmes are playing an increasingly important role. We therefore offer a wealth of training opportunities for both technical and business administration jobs. The following options are available: conventional vocational training, training in conjunction with a university of cooperative education ('Berufsakademie'), and entry as a graduate on-the-job trainee. We ensure that close guidance is provided within the departments in which training takes place. It is not only high-quality training in the subject matter itself that is important to us, but also personality development. At the end of 2016, the Chamber of Commerce and Industry (IHK) for Osnabrück, Emsland and Bentheim County awarded us 'IHK Top Training Workplace' status.

We are also, and for the third time, awarding a Deutschlandstipendium scholarship to a student at the Horticultural Faculty at Osnabrück University of Applied Sciences. This scheme is an excellent means of encouraging networking between students, higher-education institutes and the private sector.

Personnel development measures

In annual performance appraisals our employees were, for the first time, invited to provide their line manager with structured feedback on his or her leadership. The aim is, on this basis, to establish our defined leadership standards still more firmly.

An in-depth employee survey was conducted at our Lithuanian sites, the findings of which reveal a positive image of Klasmann-Deilmann as an employer with firm regional roots. To follow up on this good outcome, special workshops were held for executives.

The Lithuanian production companies were visited by young employees from the German sites during the reporting year. Events such as these are intended to promote interaction and networking between young professionals throughout the organisation.

A Competency Management model was devised specifically for executives. From 2017, this will serve as the central starting point for all further tools for systematic personnel development. Preparations are underway to tailor this model to additional target groups within our company.

Actively promoting health

is to maintain, improve or restore the health and well-being of our employees. Accordingly, health management is an integral part of all operating processes. A body consisting of executives, works council members and our company medical officer advises at regular intervals on measures to promote health.

Central elements are regular preventive health check-ups as well as promoting various measures aimed at improving employees' general health, including free flu vaccinations. Additionally, an internal works agreement enables all employees to exercise in gyms and other fitness facilities, with Klasmann-Deilmann covering a substantial part of the costs. We have adjusted to the fact that our staff will remain in employment for longer than would have been the case a few years ago. To the greatest extent possible, we intend to encourage this trend by creating attractive conditions with regard to working hours, provision of the right equipment and resources and, in particular, health promotion. The mechanisation of work processes in our technical/industrial operations has reached a high level at all locations, as has the equipping of office workplaces, so that physically demanding work is required only in exceptional cases.

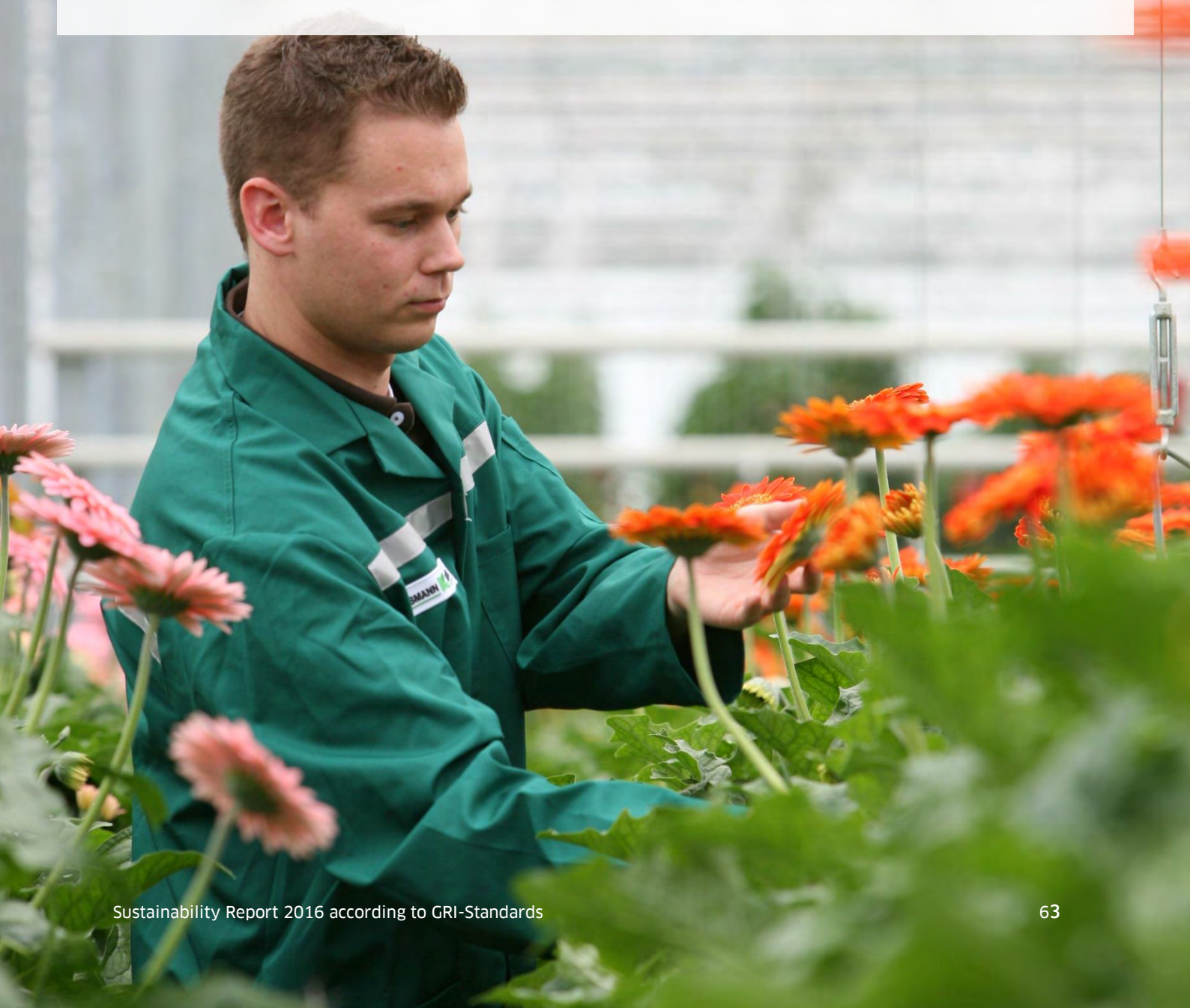
Measures to prevent psychological stress are also in place. In conjunction with the employee representation body and health-and-safety committees, a concept for risk assessment was developed in which psychological stress for different work areas was listed and weighted. Procedural instructions for line managers are drawn up on this basis.

The proportion of time employees are at work and not absent due to illness (*Gesundheitsquote*, 'health rate') for all staff of the Klasmann-Deilmann Group – including time off sick greater than six weeks' duration – increased to 96.0% (previous year: 95.9%). The number of paid sick days per employee decreased from 10.3 days in 2015 to 10.0 days in 2016.

Health and safety management strengthened

Klasmann-Deilmann maintains a health and safety management system whose goal is the total prevention of accidents by identifying potential workplace hazards in good time and, as far as possible, removing or remedying them. Among the measures to achieve this are regular on-site inspections by in-house and external safety experts, company medical officers and safety officers, as well as meetings of the health and safety committees.

We recorded 19 notifiable workplace accidents (previous year: 12) in 2016. Despite all the safety measures in place, a fatal work-related accident occurred at one of our German sites. The outcome of detailed investigations by the factory inspectorate and the employer's liability insurance fund was that relevant safety installations and technical facilities had been working properly. Nevertheless, in response to this incident we stepped up protection for higher-risk areas in the workplace. At organisational level, automatic documentation of incidents was put in place and employee training intensified. Near misses, too, continue to be thoroughly documented and assessed within the health and safety committee. In order to involve employees to an even greater extent in the implementation of health and safety measures, the reward for ideas to enhance workplace safety proposed under the employee suggestion scheme has been doubled.



Our leadership standards

102-16

Our company leaders are asked to perform a balancing act, reconciling diverse interests. Considerable demands are placed on them – both by their staff and by their own line managers. And a lot is required of them in dealings with customers and suppliers as well. Our executives also greatly influence the way the firm does business, what the working atmosphere is like and where a given department stands in relation to the organisation as an integrated whole. In view of this, Klasmann-Deilmann has developed Leadership Standards which constitute a binding framework for action on the part of every executive in our organisation.

We, the executives of Klasmann-Deilmann, shall …

- exemplify the Leadership Standards and willingly invest the time needed to perform our leadership role;
- consistently act and make decisions in the interests of sustainable business success on the part of the Klasmann-Deilmann Group;
- agree on achievable goals with our employees, keeping in mind the wider strategic corporate objectives;
- appreciate good performance and communicate this appreciation;
- help our employees to develop professionally and personally in line with needs;
- give and receive constructive feedback promptly and on a regular basis;
- provide information in a timely manner, and communicate understandably and appreciatively;
- honour appointments, commitments and agreements made, and implement any decisions taken both reliably and wholeheartedly;
- address problems, conflicts and mistakes objectively and remedy them as soon as possible;
- be open to new ideas and continuously improve operational processes.

Value-based Mission Statement

102-16

Our company's success depends crucially on all employees working hand in hand. Only when everyone gives his or her very best in their own particular role, when rules are respected, and when a common goal is pursued can staff and managers alike work successfully and with the proper motivation.

Since 2009, therefore, a value-based, personnel-related Mission Statement has been in place at Klasmann-Deilmann, which reflects the vital importance of our employees and lays significant foundations for constructive cooperation. It shapes our corporate culture, guiding staff as to what is needed and desired with regard to personal conduct, and how to relate to each other, in their work together within the company.

The Mission Statement has stimulated change leading to further improvements in workplace morale and etiquette, team spirit, the degree of care taken and the dedication shown. The aim is that all employees and executives will find, in their own respective jobs, that the commitments in place at Klasmann-Deilmann benefit each and every individual, strengthen the team he or she is in, and move the company forward. This can only be achieved if everyone takes the Mission Statement to heart.

Compliance requirements for the entire workforce

102-16

In 2009, Klasmann-Deilmann GmbH's executives received comprehensive training in questions relating to compliance. On its completion, they signed a statement undertaking to observe the compliance principles at Klasmann-Deilmann. The training programme covered the following subjects:

- Competition and antitrust legislation;
- Legal principles and objectives;
- Current remits at the company;
- The position of the Compliance Manager;
- The elements of a compliance organisation;
- Achieving compliance at the company;
- The future of the compliance organisation;
- Consequences of a breach of antitrust standards.

All managers at all hierarchical levels participated or were, subsequently, individually briefed on the key points upon their return, enabling them to sign up to the principles. Newly appointed executives will be familiarised with, and commit to, these principles as part of their induction training.

In November 2013, an agreement with the Management Board and the General Works Council came into effect that, *inter alia*, requires all employees of Klasmann-Deilmann GmbH to comply with competition and monopolies law, with a prohibition on the offering and granting of benefits, and the prohibition of money laundering. Similar provisions are to be progressively implemented in all subsidiaries.

Headcount stable

102-7, 102-8, 102-41

In the reporting year, the average number of staff employed within the Klasmann-Deilmann Group stood at 938 (previous year: 937). Of these, a total of 387 men and women were in administrative activities, and 551 in technical/industrial jobs. The proportion of those employed outside Germany was 62.1% (previous year: 61.4%).

	2016			2015			2014			2013		
	Σ	M	F	Σ	M	F	Σ	M	F	Σ	M	F
Germany	356	283	73	362	294	68	368	296	72	371	302	69
Lithuania	306	257	49	301	253	48	305	270	35	295	259	36
Latvia	106	81	25	100	68	32	105	68	37	88	59	29
Ireland	62	58	4	63	60	3	63	59	4	69	66	3
Netherlands	37	34	3	38	36	2	38	36	2	34	32	2
France	21	12	9	21	13	8	21	13	8	19	11	8
Belgium	10	8	2	11	9	2	10	8	2	9	7	2
Singapore	10	2	8	10	2	8	10	2	8	9	2	7
China	10	7	3	9	6	3	6	4	2	0	0	0
Poland	9	7	2	9	7	2	9	7	2	9	7	2
Italy	6	3	3	6	3	3	6	3	3	6	3	3
USA	3	2	1	5	2	3	5	2	3	4	1	3
Austria	2	1	1	2	1	1	2	1	1	2	1	1
Total	938	755	183	937	754	183	948	769	179	915	750	165

All figures are full-time equivalents (FTE).

Of personnel employed in Germany, 52% have employment contracts directly covered by collective-bargaining agreements. Usually, the essence of these agreements is transferred to other parts of the workforce in Germany. Outside Germany, there are no such agreements that cover employees in our subsidiaries.

The majority of our activities are carried out by our permanent employees. Additionally, the Klasmann-Deilmann Group employs workers of subcontracted employers at its production sites, especially during the summer months; these may total between 100 and 200 individuals at any given time.

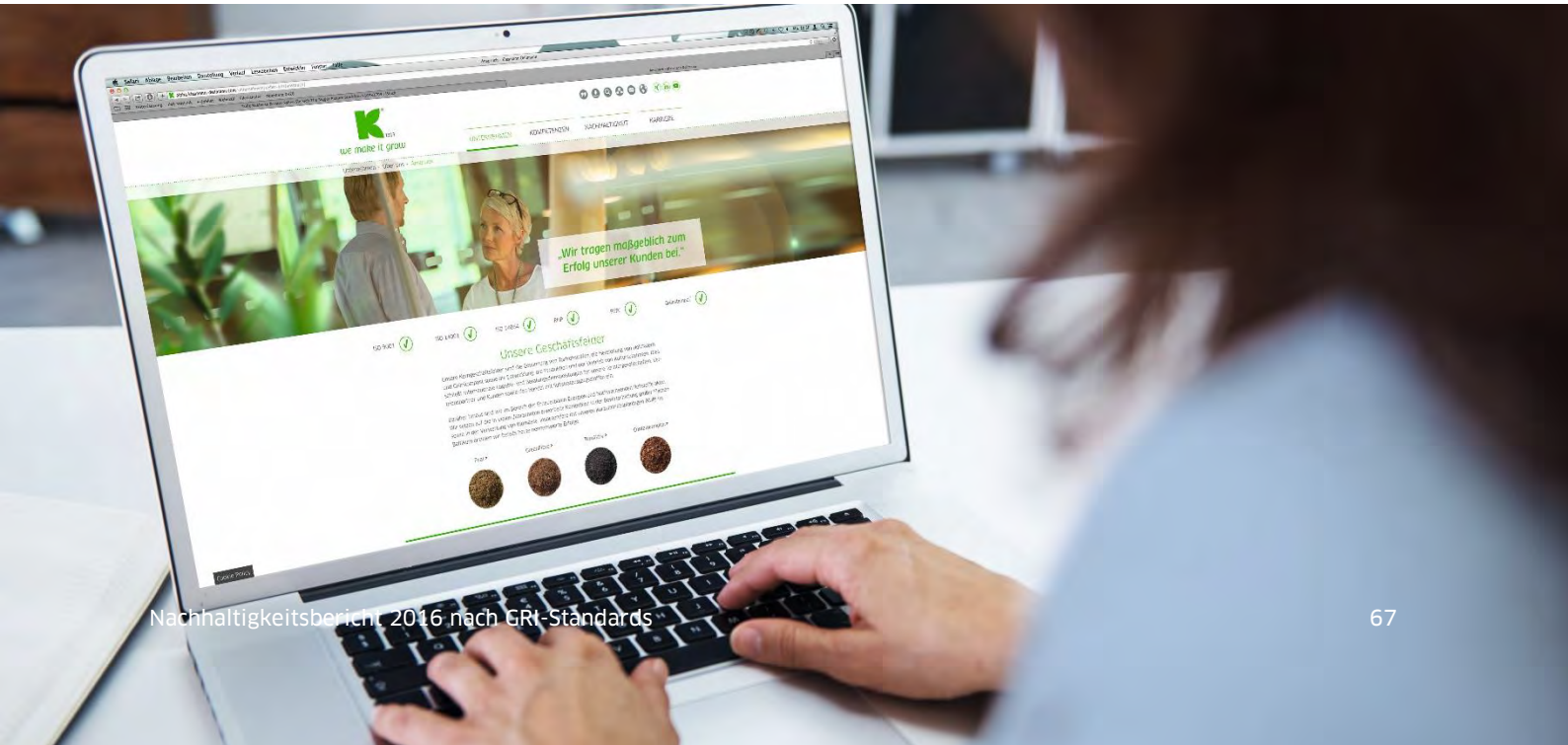
In order that production can cope with the strong, seasonal build-up of delivery orders, intermediate storage facilities have been established in Austria, France, Germany, Switzerland and Hungary; these are not run by employees of the Klasmann-Deilmann Group.

Permanent/Fixed-term contracts 2016

Total headcount: 938

Permanent contracts:	**843**	Men:	675	Germany:	228
				Other countries:	447
		Women:	168	Germany:	63
				Other countries:	105
Fixed-term contracts:	**95**	Men:	79	Germany:	6
				Other countries:	73
		Women:	16	Germany:	4
				Other countries:	12

All figures are full-time equivalents (FTE).



Mode of employment			2016	2015	2014	2013
Total headcount			**938**	**937**	**948**	**915**
Full time			**896**	**898**	**903**	**868**
Permanent contracts	Administrators	Men	234	230	222	208
		Women	109	103	101	94
	Technical/Industrial	Men	436	442	454	449
		Women	24	36	32	27
Fixed-term contracts	Administrators	Men	1	3	4	4
		Women	2	1	4	2
	Technical/Industrial	Men	78	77	83	83
		Women	12	6	3	1
Part-time			**42**	**39**	**45**	**47**
Permanent contracts	Administrators	Men	5	3	3	3
		Women	34	35	37	39
	Technical/Industrial	Men	0	0	2	3
		Women	1	0	1	1
Fixed-term contracts	Administrators	Men	0	0	0	0
		Women	2	1	2	1
	Technical/Industrial	Men	0	0	0	0
		Women	0	1	0	0

All figures are full-time equivalents (FTE).

Community commitment

In this globalised wold, our company is part of a diverse network involving people, professional associations and other organisations, and the worlds of politics, culture and sport, as well as very different interest and needs. We take our social responsibility (which extends beyond our business objectives) seriously. That's why we do what we can to get involved: financially, in the realm of ideas, on a voluntary basis and always with great dedication.

Klasmann-Deilmann GmbH supports local sports clubs, especially in communities that are home to members of staff. It also sponsors specific charitable and cultural projects. Every year during the Advent season, a major fundraising effort takes place, with selected clubs, associations and projects in the social, political and economic spheres receiving financial assistance.

The company is also a member of organisations whose goal is to respond to the challenges of a society in transition. For example, Klasmann-Deilmann is among the founding members of the Emsland region's 'Work and Family' foundation (www.familienstiftung-emsland.de), which is committed to helping local people combine family and career.

7. Annex

Our Sustainability Report 2016 has been prepared in accordance with the GRI Standards (published at the end of 2016) of the Global Reporting Initiative (GRI). As part of the Standards Pioneers programme, we aim to promote GRI Standards in the German-speaking world and further enhance our own reporting. Because the material topics had been previously defined, the thematic scope of this Report corresponds to that of previous publications. Yet we now aspire to higher standards, especially in terms of management approach. What this means for our shareholders is additional opportunities for evaluating our sustainable development.

7.1 Report profile

Procurement of external advice on GRI Standards and ISO 14064-compliant verification

102-54, 102-56

This report has been prepared in accordance with the GRI Standards: Core option. Our reporting thus includes all aspects identified as material to our sustainable development, as well as related internal and external impacts. In this context, the Managing Directors of our organisation set great store by the procuring of professional content-related advice from an external independent body. As in previous years, we contracted the Wuppertal-based agency triple innova GmbH, which is not affiliated with our company, with this task. The GRI Materiality Disclosures Service confirms that, at the time of publication, disclosures GRI 102-40 to GRI 102-49 are correctly located in the GRI content index and final report.

The corporate carbon footprint (CCF) calculated for 2016 with the assistance of Meo Carbon Solutions GmbH of Cologne, and the relevant calculation tools, were verified by SGS United Kingdom Ltd (Cheshire, UK) to the ISO 14064-1 standard. It was found, as previously, that the calculation of product carbon footprints (PCFs) on this basis also led to verifiable outcomes. The audit report is set out on pages 78 to 82. It includes the following topic-specific disclosures: 305-1 (Scope 1), 305-2 (Scope 2), 305-3 (Scope 3) and 305-4 (carbon footprint per m3 of substrate) of the GRI Standards (2016).

Reporting cycle

102-50, 102-51, 102-52

This Sustainability Report for the financial year 1 January – 31 December 2016 is issued by Klasmann-Deilmann GmbH. Following our reports on the financial years 2011, 2012, 2013, 2014 and the Sustainability Report for 2015 published in August 2016, this is the sixth time we have reported about all the key issues ('material topics') and activities relating to sustainable development within our organisation. In the future, our Sustainability Reports will be published on a biennial basis in order to keep the time and effort involved within reasonable proportions and, above all, to give the various sustainability projects sufficient time to develop favourably.

Defining report content and topic boundaries

102-46

Those topics that are material to our company were, for the first time, explored and defined at two workshops facilitated by triple innova GmbH, a sustainability agency, in 2011. In this context, an internal project group formed which has, since then, guided our sustainable development and moved it forward. The make-up of this group is characterised by continuity and reflects the Klasmann-Deilmann Group's various divisions and organisational structure. Only in exceptional cases will there be changes to its composition, as for example in connection with our corporate reorganisation in 2014/2015. The project group includes:

- the Managing Directors of Klasmann-Deilmann GmbH, our organisation's lead company;
- representatives of various divisions at Klasmann-Deilmann GmbH: Land Use & Sustainability Management, Technology & Procurement, Research & Development, Human Resources, Finance, IT & Legal, and Corporate Communications & Identity;
- representatives of two divisions at Klasmann-Deilmann Service GmbH: Sales Administration & Logistics, and Advisory Services & Quality Management;
- representatives of Klasmann-Deilmann Europe GmbH, the largest sales company; and
- representatives of Klasmann-Deilmann Benelux B.V., which is concerned with significant material flows.

The project group's functional competence extends to the identification and annual review of our material topics, the defining of topics for each report (including topic boundaries), and assessment of corporate performance with regard to the material topics and related internal and external impacts.

The materiality process carried out during the above-mentioned workshops led to the identification of sustainability aspects material to Klasmann-Deilmann which we have, since then, been continuously developing further – in terms of strategy, business and substance – and may add to. The outcome of engagement with our stakeholders, new ideas from work with professional associations and reader feedback will benefit our publications. The results of this ongoing process form the basis of our reporting.

The reporting boundaries have been continuously extended since the first Sustainability Report in 2011, and today relate to the entire Klasmann-Deilmann Group including its lead companies and service companies, as well as all sales companies and production companies. At the same time, reporting in accordance with GRI guidelines in recent years has, at various points, led to the consolidation of additional information and the collection of additional data on various aspects which in turn helped us to further enhance the efficiency of our internal reporting system as well. In this way, our Sustainability Reports ensure a comprehensive picture is provided of sustainable development within our organisation.

Contact point for questions regarding the report

102-53

The contacts for enquiries on sustainable development and the Klasmann-Deilmann Group's Sustainability Report are as follows:

Sustainable development and carbon footprint

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+49 (0) 5937 31 288
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Sustainability Report

Dirk Röse, Corporate Communications
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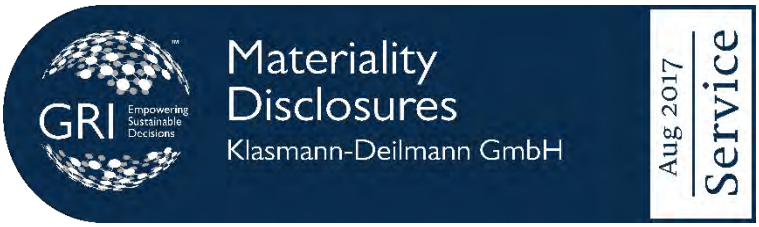
dirk.roese@klasmann-deilmann.com



7.2 GRI Content Index

102-55

Foundation: GRI Standards 101 (2016)

General Disclosures (GRI Standards 2016)

GRI Standard	Disclosure	Page	Omission
GRI 102: Organizational profile	102-1: Name of the organization	11	-
	102-2: Activities, brands, products, and services	7, 23, 24, 25, 29, 30, 31, 41	-
	102-3: Location of headquarters	11	-
	102-4: Location of operations	11, 12, 26, 30	-
	102-5: Ownership and legal form	11	-
	102-6: Markets served	32, 33, 38, 39	-
	102-7: Scale of the organization	11, 13, 14, 26, 30, 38, 39, 66	-
	102-8: Information on employees and other workers	66	-
	102-9: Supply chain	28, 32	-
	102-10: Significant changes to the organization and its supply chain	11	-
	102-11: Precautionary Principle or approach	4, 9, 21, 22, 31, 35, 42	-
	102-12: External initiatives	9, 18, 42, 44	-
	102-13: Membership of associations	18	-
GRI 102: Strategy	102-14: Statement from senior decision-maker	4	-
GRI 102: Ethics and Integrity	102-16: Values, principles, standards, and norms of behavior	28, 42, 64, 65	-
GRI 102: Governance	102-18: Governance structure	11	-

General Disclosures (GRI Standards 2016)

GRI Standard	Disclosure	Page	Omission
GRI 102: Stakeholder Engagement	102-40: List of stakeholder groups	17	-
	102-41: Collective bargaining agreements	66	-
	102-42: Identifying and selecting stakeholders	17	-
	102-43: Approach to stakeholder engagement	17, 18	-
	102-44: Key topics and concerns raised	17	-
GRI 102: Reporting practices	102-45: Entities included in the consolidated financial statements	13	-
	102-46: Defining report content and topic Boundaries	72	-
	102-47: List of material topics	8	-
	102-48: Restatements of information	48	-
	102-49: Changes in reporting	48, 49	-
	102-50: Reporting period	71	-
	102-51: Date of most recent report	71	-
	102-52: Reporting cycle	71	-
	102-53: Contact point for questions regarding the report	73	-
	102-54: Claims of reporting in accordance with the GRI Standards	71	-
	102-55: GRI content index	74	-
	102-56: External assurance	71, 78	-

Topic-specific disclosures (GRI Standards 2016)

GRI Standard	Disclosure	Page	Omission
Materials			
GRI 103: Management approach	103-1: Explanation of the material topic and its Boundary	21, 35	-
	103-2: The management approach and its components	10, 21, 22, 23, 24, 25, 29, 30, 35, 39	-
	103-3: Evaluation of the management approach	21, 35	-
GRI 301: Materials	301-1: Materials used by weight or volume	27, 38	-
	301-2: Recycled input materials used	24	-
Biodiversity			
GRI 103: Management approach	103-1: Explanation of the material topic and its Boundary	41	-
	103-2: The management approach and its components	41, 42, 44, 45	-
	103-3: Evaluation of the management approach	42, 44	-
GRI 304: Biodiversity	304-2: Significant impacts of activities, products, and services on biodiversity	43	-

Topic-specific disclosures (GRI Standards 2016)

GRI Standard	Disclosure	Page	Omission
Emissions			
GRI 103: Management approach	103-1: Explanation of the material topic and its Boundary	46, 48, 49	-
	103-2: The management approach and its components	46, 56, 58, 59	-
	103-3: Evaluation of the management approach	56, 58., 59	-
GRI 305: Emissions	305-1: Direct (Scope 1) GHG emissions	53, 54, 78	-
	305-2: Energy indirect (Scope 2) GHG emissions	53, 78	-
	305-3: Other indirect (Scope 3) GHG emissions	53, 78	-
	305-4: GHG emissions intensity	51	-
Energy			
GRI 103: Management approach	Our organisation's impacts in terms of GRI standards relate chiefly to the following aspects: 'Materials', 'Emissions' and 'Biodiversity'. However, our Energy business area has also been reinterpreted under the GRI Standards: the impacts related to these activities are covered by 'Management approaches' and further remarks on Materials and Emissions.		
GRI 302	302-1 to 302-5	**./.**	Not applicable

7.3 SGS Verification Statement

102-56, 305-1, 305-2, 305-3

Greenhouse Gas Verification Statement Number UK.VOL.INV.0115.2016

The inventory of Greenhouse Gas emissions in the period 01/01/2016 – 31/12/2016 for

Klasmann-Deilmann GmbH
Georg-Klasmann-Str. 2-10
49744 Geeste
Germany

has been verified in accordance with ISO 14064-3:2006 as meeting the requirements of: **ISO 14064-1:2006**

To represent a total amount of: **208 929 tCO_2e**

For the following activities: **Substrate production**

Lead Assessor: Dina Bauer
Technical Reviewer: Peter Simmonds

Authorised by:
Jonathan Hall
Business Manager
SGS United Kingdom Ltd

Verification Statement Date 17th July 2017

This Statement is not valid without the full verification scope, objectives, criteria and conclusion available on pages 2 to 4 of this Statement.

Schedule Accompanying Greenhouse Gas Verification Statement Number UK.VOL.INV.0115.2016

Brief Description of Verification Process
SGS has been contracted by Klasmann-Deilmann GmbH for the verification of direct and indirect carbon dioxide (CO_2) equivalent emissions as provided by Klasmann-Deilmann GmbH, Georg-Klasmann-Str. 2-10, 49744 Geeste, Germany in their GHG Assertion in the form of a Greenhouse Gas Emissions Report covering CO_2 equivalent emissions.

Roles and responsibilities
The management of Klasmann-Deilmann is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions.

It is SGS' responsibility to express an independent GHG verification opinion on the emissions as provided in the Klasmann-Deilmann GHG Assertion for the period 01/01/2016 – 31/12/2016.

SGS conducted a third party verification following the requirements of ISO 14064-3: 2006 of the provided CO_2 equivalent assertion in the period April to June 2017.

The assessment included a desk review and a site visit at Klasmann-Deilmann headquarters office in Geeste. The verification was based on the verification scope, objectives and criteria as agreed between Klasmann-Deilmann and SGS on 23rd January 2017.

Level of Assurance
The level of assurance agreed is limited.

Scope
Klasmann-Deilmann has commissioned an independent verification by SGS of reported CO_2 equivalent emissions arising from their activities, to establish conformance with the requirements of ISO 14064-1:2006 within the scope of the verification as outlined below. Data and information supporting the CO_2 equivalent assertion were historical in nature and proven by evidence.

This engagement covers verification of emissions from anthropogenic sources of greenhouse gases included within the organization's boundary and meets the requirements of ISO 14064-1:2006.

- The organizational boundary was established following the operational control approach.
- Title or description of activities: Substrate production
- Location/boundary of the activities: all winning and production sites of Klasmann-Deilmann Group.
- Physical infrastructure, activities, technologies and processes of the organization peat winning, after use of peat areas, the production of substrates, internal transport and transport to client and the end of life emissions (for one year).
- GHG sources, sinks and/or reservoirs included:
  Scope 1 - fugitive emissions of peat, stationary emissions from fuels, mobile combustion from fuels;
  Scope 2 – purchased electricity;
  Scope 3 – 3rd party distribution by rail, road and sea, emissions from production of other ingredients, end use of product, upstream emissions from energy generation.

Removals - planted forest – are reported separately to the inventory, not reported as any scope

- Types of GHGs included: CO_2, N_2O, CH_4
- Directed actions: certain activities relating to renewable energy generation and forestry are reported seperately but were not included within the scope of this verification.
- GHG information for the following period was verified: 01/01/2016 – 31/12/2016.
- Intended user of the verification statement: internal, customers and general public.

Objective
The purposes of this verification exercise are, by review of objective evidence, to independently review:
- Whether the CO_2 equivalent emissions are as declared by the organization's CO_2 equivalent assertion
- That the data reported are accurate, complete, consistent, transparent and free of material error or omission.

Criteria
Criteria against which the verification assessment is undertaken are the requirements of ISO 14064-1:2006 and Klasmann-Deilmann's own methodology

Materiality
The materiality required of the verification was considered by SGS to be below 10%, based on the needs of the intended user of the GHG Assertion

Conclusion
Klasmann-Deilmann provided the GHG assertion based on the requirements of ISO 14064-1:2006. The GHG information for the period 01/01/2016 – 31/12/2016 disclosing gross emissions of 208 929 metric tonnes of CO_2 equivalent are verified by SGS to a limited level of assurance, consistent with the agreed verification scope, objectives and criteria.

SGS' approach is risk-based, drawing on an understanding of the risks associated with modeling GHG emission information and the controls in place to mitigate these risks. Our examination included assessment, on a sample basis, of evidence relevant to the voluntary reporting of emission information.

SGS concludes with limited assurance that there is no evidence to suggest that the presented CO_2 equivalent assertion is not materially correct and is not a fair representation of the CO_2 equivalent data and information, and is not prepared following the requirements of ISO 14064-1:2006.

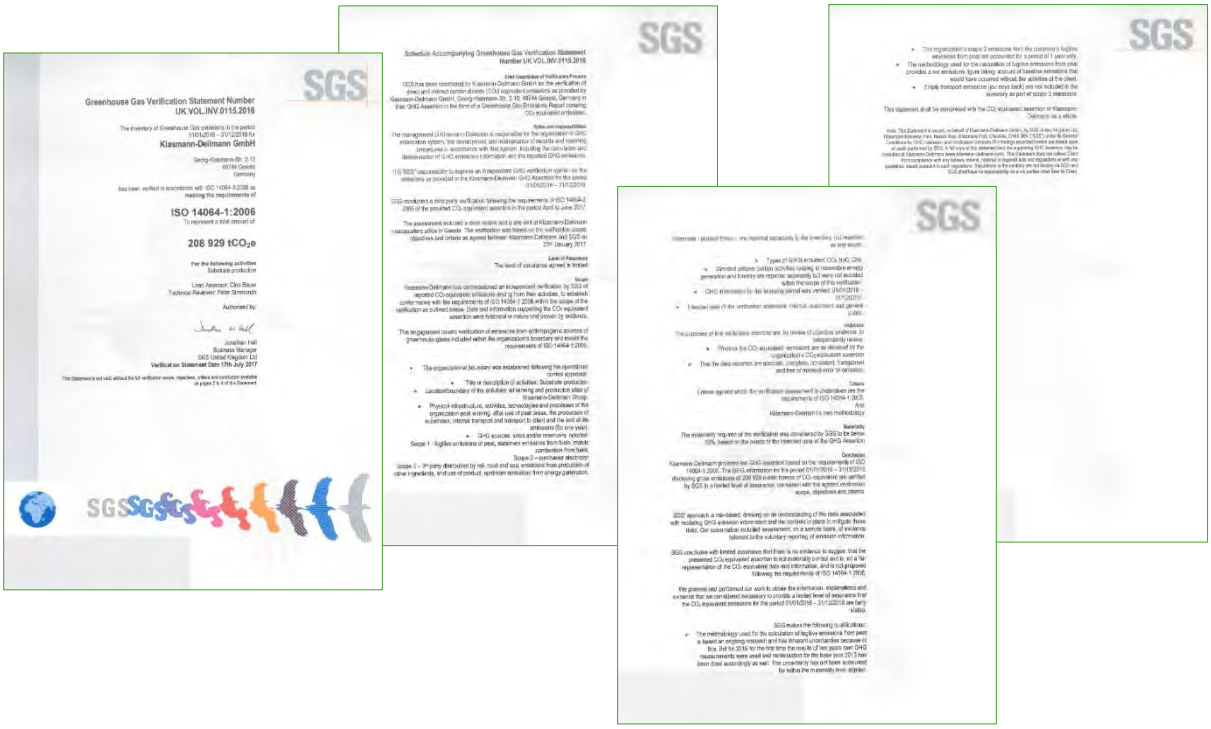
We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a limited level of assurance that the CO_2 equivalent emissions for the period 01/01/2016 – 31/12/2016 are fairly stated.

SGS makes the following qualifications:

- The methodology used for the calculation of fugitive emissions from peat is based on ongoing research and has inherent uncertainties because of this. But for 2016 for the first time the results of two years own GHG measurements were used and recalculation for the base year 2013 has been done accordingly as well. This uncertainty has not been accounted for within the materiality level applied.
- The organization's scope 3 emissions from the customer's fugitive emissions from peat are accounted for a period of 1 year only.
- The methodology used for the calculation of fugitive emissions from peat provides a net emissions figure taking account of baseline emissions that would have occurred without the activities of the client.
- Empty transport emissions (journeys back) are not included in the inventory as part of scope 3 emissions.

This statement shall be interpreted with the CO_2 equivalent assertion of Klasmann-Deilmann as a whole.

Note: This Statement is issued, on behalf of Klasmann-Deilmann GmbH, by SGS United Kingdom Ltd, Rossmore Business Park, Inward Way, Ellesmere Port, Cheshire, CH65 3EN ("SGS") under its General Conditions for GHG Validation and Verification Services.The findings recorded hereon are based upon an audit performed by SGS. A full copy of this statement and the supporting GHG Assertion may be consulted at Klasmann-Deilmann (www.klasmann-deilmann.com). This Statement does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.



Greenhouse Gas Verification Statement Number UK.VOL.PCF.0115.2016

The Product Carbon Footprint Calculation Tool of:

Klasmann-Deilmann GmbH
Georg-Klasmann-Str. 2-10
49744 Geeste
Germany

has been verified in accordance with ISO 14064-3:2006 as enabling calculation of: **Carbon Footprints**

For the following calculation tool for substrate products:
KD_PEAT_v5.5

Lead Assessor: Dina Bauer
Technical Reviewer: Peter Simmonds

Authorised by:
Jonathan Hall
Business Manager
SGS United Kingdom Ltd

Verification Statement Date 17th July 2017

This Statement is not valid without the full verification scope, objectives, criteria and findings available on pages 2 to 3 of this Statement.

Schedule Accompanying Greenhouse Gas Verification Statement Number UK.VOL.PCF.0115.2016

Brief Description of Verification Process
SGS has been contracted by Klasmann-Deilmann GmbH, for the verification of a methodology and tool used to calculate the Product Carbon Footprint of substrate products in accordance with ISO 14064-3:2006

Roles and responsibilities
The management of Klasmann-Deilmann is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions.

It is SGS' responsibility to express an independent GHG verification opinion on the GHG emissions as provided in the Klasmann-Deilmann product carbon footprint calculation methodology and tool.

The verification was based on the verification scope, objectives and criteria as agreed between Klasmann-Deilmann and SGS on 23rd January 2017

Level of Assurance
The level of assurance agreed is that of limited assurance.

Scope
Klasmann-Deilmann has commissioned an independent verification by SGS of the Product Carbon Footprint methodology and calculation tool to establish conformance with the principles of relevance, completeness, consistency, accuracy and transparency within the scope of the verification as outlined below. The data and information supporting the GHG assertion were historical in nature, based on collected data from 2016.

This engagement covers verification of the methodology and tool for calculating emissions. The tool has the option to calculate emissions from cradle-to-gate or cradle-to-grave sources of greenhouse gases included within the life cycle of the product. The tool is modular and the option also exists to calculate emissions from cradle-to-gate plus transportation of product to the client including choice of mode of transport, selection of production site and origin of ingredients, the use phase and the end of life phase, taking account of emissions over a period of 1 to 100 years. The verification is based on ISO 14064-3:2006.

The scope of this engagement covers:
- The assessment of fugitive emissions from peat fields (land use change), including after use of land and drying of peat, raw materials, production of other ingredients, transport, packaging, bulk storage, and consumer phase emissions.
- Physical infrastructure, activities, technologies and processes of the organization: peat winning, after use of peat areas, the production of substrates, transport, use and the end of life.
- Types of GHGs included: CO2, N2O, CH4.
- Intended user of the Verification Statement: external use (customers, suppliers, investors and other).

Objective
The purpose of this verification exercise is, by review of objective evidence, to independently review:
- The methodology employed in the tool calculates CO2 equivalent emissions per functional unit according to the requirements of the criteria below.

Materiality
The materiality threshold applied by SGS was 10%, based on the needs of the intended user.

Conclusion
Klasmann-Deilmann provided the Product Carbon Footprint Methodology and Calculation Tool based on the principles of relevance, completeness, consistency, accuracy and transparency. The methodology employed, the tool used to calculate the product carbon footprint of substrate products based on different recipes, and the input data for 2016 used in the tool are verified by SGS to a limited level of assurance, consistent with the agreed verification scope, objectives and criteria.

SGS' approach is risk-based, drawing on an understanding of the risks associated with modeling GHG emission information and the controls in place to mitigate these risks. Our examination included assessment, on a sample basis, of evidence relevant to the reporting of emission information.

SGS concludes with limited assurance that, there is no evidence that the Methodology and Product Carbon Footprint tool stated above is not materially correct and does not present data that is complete and accurate.

SGS makes the following qualifications:
- The methodology used for the calculation of fugitive emissions from peat is based on ongoing research and has inherent uncertainties because of this. But for 2016 for the first time the results of two years own GHG measurements were used and recalculation for the base year 2013 has been calculated accordingly. This uncertainty has not been accounted for within the materiality level applied.
- The methodology used for the calculation of fugitive emissions from peat provides a net emissions figure taking account of baseline emissions that would have occurred without the activities of the client.

Note: This Statement is issued, on behalf of Klasmann-Deilmann GmbH, by SGS UK Ltd ("SGS") under its General Conditions for GHG Validation and Verification Services available at http://www.climatechange.sgs.com/terms_and_conditions_climatechange.
The findings recorded hereon are based upon an audit performed by SGS. A full copy of this statement, the findings and the supporting GHG Assertion may be consulted at Klasmann-Deilmann (www.klasmann-deilmann.com). This Statement does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.

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7.5 About this publication

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