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MARKET STUDY REPORT

PEAT USE IN GROWING MEDIA: TRENDS AND OUTLOOK

EDITION - SEPTEMBER 2026



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PARTNERS INVOLVED

CHAMBRE D'AGRICULTURE PAYS DE LA LOIRE

AC3A

Stiftung ÖKOWERK EMDEN
erleben · begreifen · handeln · bewahren

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INTRODUCTION

Specialist plant production sectors—such as horticulture, nurseries, and vegetable seedling producers—are highly **dependent on the use of growing media.** The most symbolic growing media material is **peat** for its comprehensive agronomic qualities. Growing media also represents a market for **amateur gardeners** who contribute to peat consumption. However, the use of peat is being questioned as the exploitation of peatlands to produce peat-based potting soil has **significant environmental consequences**, particularly in relation to climate change.

This study aims to **analyze the state of the growing media market** to better understand the challenges associated with the use of peat and the development of **alternatives**. First, it provides a historical overview of the origins of peat-based substrate production, emphasizing the main European producing and consuming countries.

It then focuses on the **policy measures and targets** implemented by various public authorities in Europe to reduce the peat content of growing media. These measures, which vary in ambition depending on the country, are in line with greenhouse gases emission targets and already impact the substrate supply chains.

This study also examines **alternative materials that could replace peat**, their availability, and the feasibility of scaling up their use. Finally, it offers a f**orward-looking vision** for potting soil demand in the coming decades and assesses the potential impact on peat and alternative material requirements.

Through this analysis based on literature and interviews with players in the growing media market, our goal is to determine the **factors at work in reducing or maintaining peat use** and the **level of viability of alternatives.**



Credits : Clara DIEBOLT

PEAT AS NATURAL RESOURCE

PEAT FORMATION AND DEFINITION

Peat formation requires two excess balances:

- one for **organic matter,** whose production must exceed decomposition;
- and one for **water**, as the soil must remain waterlogged despite evapotranspiration.

Water is in fact the essential factor: it enables the life of turf-forming hygrophytes (aquatic plants); its stagnation makes the environment asphyxiating, resulting in a selective effect on rhizosphere microorganisms and a marked slowdown in the biochemical processes of decomposition.

Peat is therefore an **accumulation of fossilized organic matter** and thus has a high concentration of organic carbon. As peat formation takes place over **several thousand years**, it **cannot be considered a renewable resource**. (Universalis.fr)

GLOBAL GEOGRAPHIC DISTRIBUTION

Peatlands account for 3% of the world's soils but constitute 30% of the world's terrestrial biomass (Parish et al. 2008). It is therefore a major carbon sink.



IT IS MORE THAN A MATTER OF SIZE

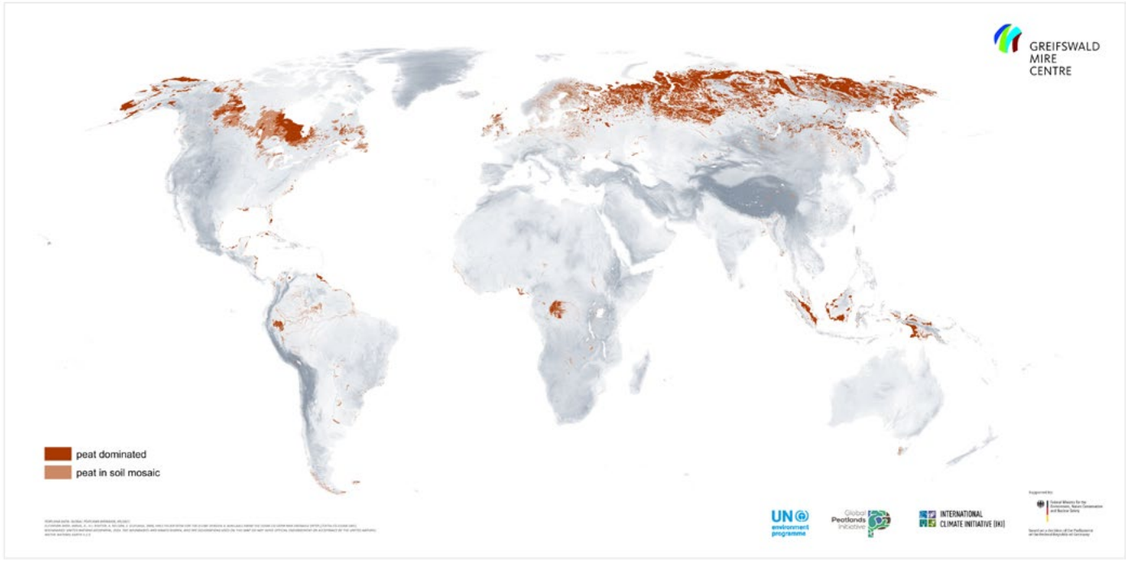
Peatlands represent **500 Mha** worlwide storing **600 billion** tons of carbon



while forests need **3330 Mha** to store **372 billion** tons of carbon

Conditions favorable to peat formation are found at various latitudes:

- From the tropical climates where rainfall is high (Congo, Indonesia, Malaysia...) with peatlands with the highest carbon density per hectare,
- to the vast peatlands of boreal climates where cold slows down decomposition (Canada, Russia, Scandinavia...).



▲ *Distribution of peatlands in the World (Greifswald Mire Centre, 2025).*

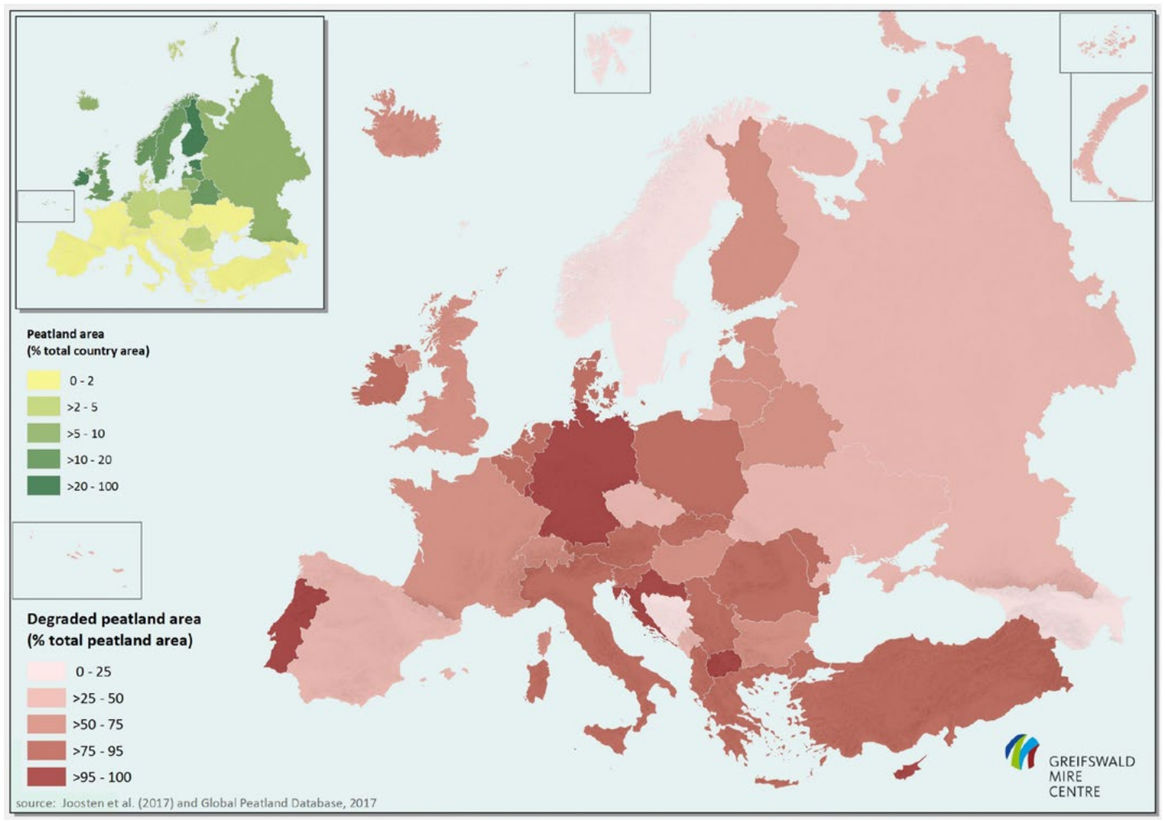
PEATLANDS IN EUROPE

Peatlands are widespread across Europe, particularly in the northern and north-western regions of the continent. According to the European Peatland Map, they cover approximately **594,000 km²** across Europe. Within the European Union, peatlands account for around **268,000 km²**, representing nearly half of the continent's peatland area. Only around 54% of European peatlands remain active mires that continue to accumulate peat, while the remainder have been degraded or transformed through drainage, agriculture, forestry, peat extraction and other land uses. Consequently, close to **half of Europe's peatlands are considered degraded**, a trend that is also observed across the European Union.

The **peat industry** is concentrated in Northern and Eastern Europe and peat extraction is still practiced in several EU Member States, including Finland, Sweden, Estonia, Latvia, Lithuania, Ireland, Germany and Poland. The extent and importance of this activity vary considerably between countries depending on peatland resources, national energy policies, and horticultural markets.

Peat extraction represents only a relatively small share of peatland land use at the European scale, but it has significant impacts on carbon storage, greenhouse gas emissions, biodiversity, and hydrological functions.

594 000 km² of peatlands across Europe,
nearly **50%** degraded by human activities



▲ *Distribution of peatlands in Europe and degradation status (Greifswald Mire Centre, 2025).*

RETROSPECTIVE ON THE DEVELOPMENT OF PEAT USES IN PLANT PRODUCTION

THE HISTORY OF PEAT USE FROM 1950 TO THE 2010s

1950

After Second World War: From traditional to industrial use of peat



Peatlands have been exploited for hundreds of years for heat and electricity production in Northern European countries (Gerding et al. 2015, Bord na Mona 2017).

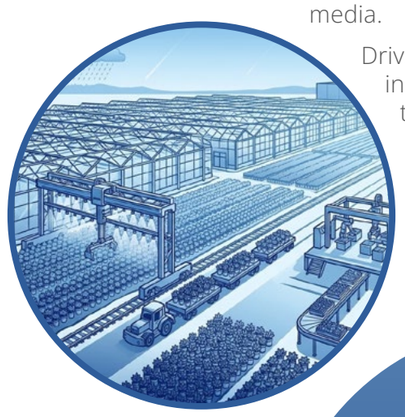
After the Second World War, and particularly during the economic boom of the 1970s and 1980s, demand for ornamental plants grew significantly in Europe.



1970

Second half of the 20th century: the beginnings of pot cultivation

From the 1960s and 1970s onwards, peat began to be used as material for the manufacture of growing media.



Driven by technical research in Germany and Finland, the production of young plants in pots became increasingly widespread.

1990

2010s: the peak of peat extraction in Europe

From the 1970s to the 2010s, demand for potted plants grew in Europe, both among professionals (horticulturists, market gardeners, cut flower producers, etc.) and private individuals (for leisure use in gardens).

The European horticultural industry developed around peat, which is inexpensive, available in huge quantities and pathogen-free.

At the same time, peat is still used as a source of energy in northern European countries, where this use is traditional. Europe, which extracts 80% of the world's peat, consumed an average of nearly 19 million tons of peat annually between 2013 and 2017, all uses combined (O. Hirschler, 2022).

2010

2020

PEAT FLOWS IN EUROPE DURING THE 2010s

METHODOLOGY

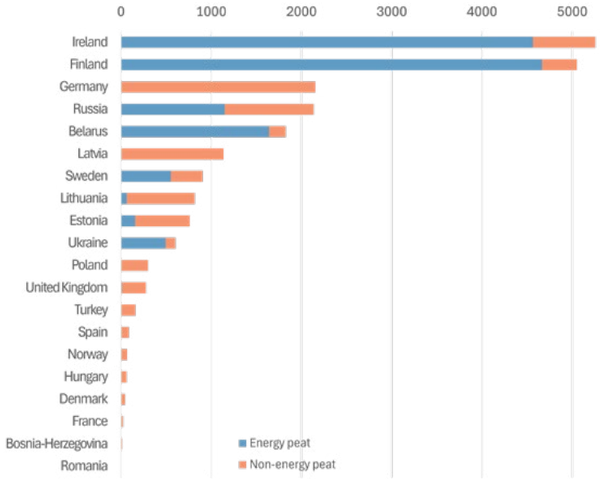
This paragraph summarizes the main points of the 2022 publication «Peat extraction, trade and use in Europe: a material flow analysis» by Olivier Hirschler and Bernhard Osterburg, published in Mires and Peat Volume 28. This publication covers the European Union of 27 Member States, the United Kingdom, Russia and Eastern European countries (Ukraine, Belarus) during the period 2013-2017.

PEAT EXTRACTION FOR ENERGY PRODUCTION

Over the period 2013-2017, peat for energy accounted for 62% of peat extracted in Europe and Russia. Although it represents most of the peat extracted, «energy peat» is concentrated in a small minority of countries (mainly Ireland, Sweden and Finland) and is consumed locally.

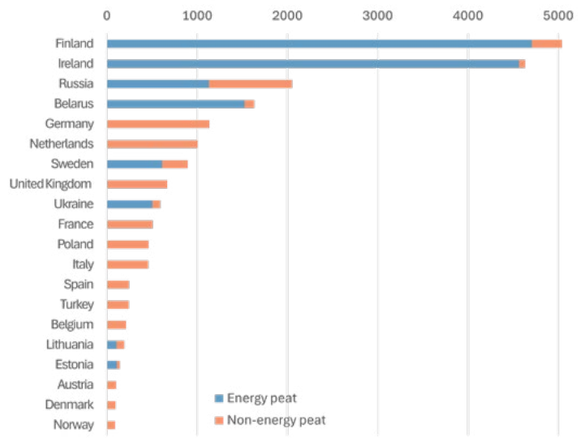
AVERAGE PEAT EXTRACTION (IN KT PER YEAR FOR THE PERIOD 2013-2017 (TOP 20 COUNTRIES IN EUROPE)

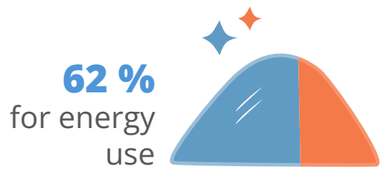
Source (Hirschler and Osterburg, 2022)



AVERAGE PEAT CONSUMPTION (IN KT PER YEAR FOR THE PERIOD 2013-2017 - (TOP 20 COUNTRIES IN EUROPE)

Source (Hirschler and Osterburg, 2022)





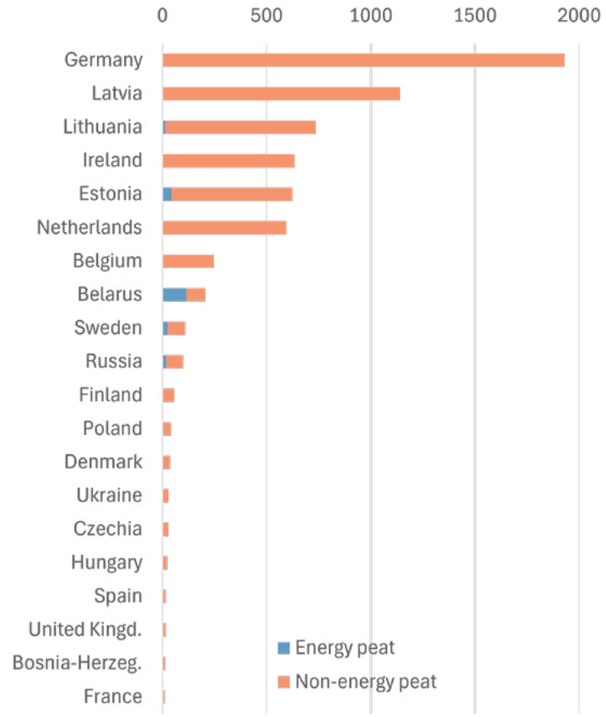
PEAT FLOW FOR GROWING MEDIA

The volume of this «non-energy peat» consumed in Europe and Russia represents more than 7 million tons annually during the period 2013-2017. It is extracted from Germany, the Baltic States, Ireland and Scandinavia. Most of the peat for growing media extracted in Europe remains in Europe. However, flows between countries are significant, accounting for 85% of the volumes extracted.

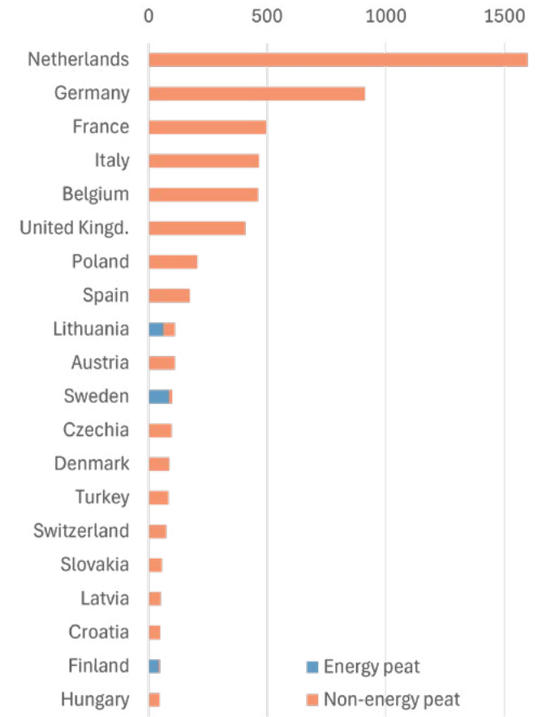
In 2013, peat accounted for an average of 75% of the volume of growing media in Europe (Schmilewski, 2017).

Germany was the leading player in these peat flows, being both a major importer of peat and a major exporter of peat substrates (1 930 kT/year). Germany and the Netherlands are heavily dependent on exports from the Baltic States. These two countries were also the main consumers of peat, followed by the United Kingdom, France and Italy, which are entirely dependent on imports.

AVERAGE PEAT EXPORT (IN KT PER YEAR FOR THE PERIOD 2013–201 | TOP 20 COUNTRIES IN EUROPE)



AVERAGE PEAT IMPORT (IN KT PER YEAR FOR THE PERIOD 2013–2017 | TOP 20 COUNTRIES IN EUROPE)



THE EXAMPLE OF THE NETHERLANDS:

A FULLY-FLEDGED VALUE CHAIN FROM PEATLAND TO HORTICULTURE

The growing media industry generated an annual turnover of €1.3 billion and 11,000 jobs across the 28 countries of the European Union in 2007.

In Northern European countries, the production of plants using growing media is a real economic sector.

In 2007, Dutch horticulture generated a net value of more than €4 billion annually (Product Board Horticulture (PT 2007)). The amount could rise to more than €6 billion when all other products derived from this activity are considered.

The Netherlands imports all the peat used in its growing media manufacture. One third is used in horticulture, one third is sold to private individuals and one third is exported directly. In this country, as in Germany, a genuine economic ecosystem based on the availability of peat has gradually developed. Any peat use questioning has consequences for many economic stakeholders, including growing media manufacturers, exporters and plant producers.

Source : Verhagen, A., et al. (2009). Peatlands and carbon flows: Outlook and importance for the Netherlands.

THE EXAMPLE OF THE REPUBLIC OF IRELAND: A HORTICULTURAL SECTOR EXPORTING TO THE UNITED KINGDOM

Historically, 90% of the peat extracted in Ireland was for energy/heat use. So, the phasing out of peat for electricity generation and domestic heating has greatly reduced domestic demand. Only the remaining 10% were used for horticulture. 90% of the peat extracted for horticulture was exported, as milled peat or as casing for mushroom production.

Horticulture had an output valued at 469 million euros, with 85% of it for food use and 15% for other amenities. It is estimated that around 60% of the economic value created stems from the use of peat as a growing medium. The mushroom industry is a big player which exports 85% of its production to the UK market representing 115 million euros.

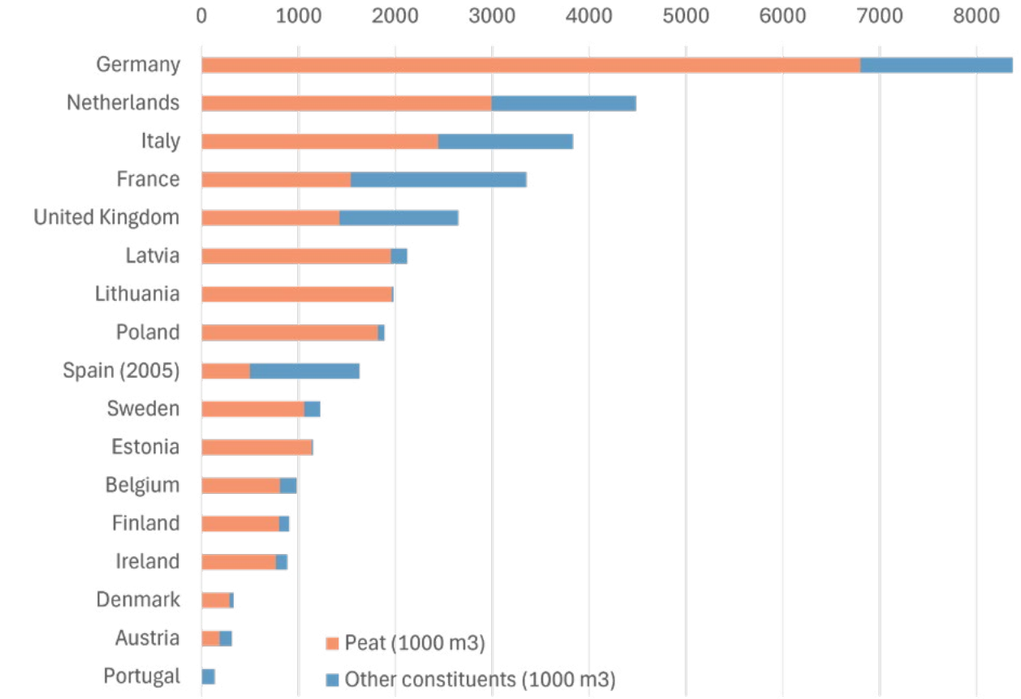
In Ireland, horticulture is a predominantly regionally dispersed sector that plays an important role in sustaining rural economies. The industry supports over 6,600 full-time jobs in primary production, in addition to approximately 11,000 positions in processing, distribution and other downstream or value-added activities. (Department of Agriculture, Food and the Marine, 2022).



Credits : Clara DIEBOLT

A HETEROGENEOUS DEPENDENCE ON PEAT IN THE COMPOSITION OF SUBSTRATES IN EUROPEAN COUNTRIES

Given that transport costs weigh heavily on the profitability of growing media, several regions of the world use little or no peat in the composition of their potting soils. Mediterranean countries, Australia and the southern United States, for example, incorporate high proportions of bark into their substrates (L.-M. Rivière, 2016) .



▲ *Use of growing media constituents for growing media in Europe in 2013 (Spain: 2005). Units: tds cubic meter based on EN12580 (growing constituents before mixing) (source : Hirschler, et al., 2022 - based on a work from Schmilewski (2017) and Schmilewski (2008) for Spain).*

THE EXAMPLE OF FRANCE:

A GROWING MEDIA COMPOSITION THAT ADAPTS TO NATIONAL RESOURCES

In the 2000s, 85% of the peat used in France was imported from Northern European countries. Peat extracted in France was used for the leisure gardening market.

In France, in the 1970s, the technique of fertigation of substrates based on mixtures of bark and peat developed following the work of agronomists Coïc and Lesaint (L.-M. Rivière, 2016) . This mixed composition can be explained by two factors:

- the low presence of peatlands in France compared to northern European countries. In France, peatlands are found in mountain ranges and alluvial valleys.
- the presence of the vast coniferous forest of the Landes region in south-western France. This region provides large quantities of wood by-products, including bark.

According to growing media producers interviewed in France during the summer of 2025, growing media produced in France contain an average of around 30% peat. This proportion varies greatly between potting soils for hobby gardeners and potting media for professionals.

ENVIRONMENTAL CONCERNS OVER PEAT EXTRACTION RESHAPE THE GROWING MEDIA MARKET

A GROWING AWARENESS OF BIODIVERSITY, WATER AND CARBON CHALLENGES FOR PEATLANDS

The first environmental impact of peat extraction to be considered was its impact on biodiversity. In the 2010s, publications on alternative raw materials to peat for potting soil began to appear. The protection of fragile natural environments was highlighted as essential for the survival of many animal and plant species (Lindholm & Heikkilä, 2016).

At the same time, climate concerns and various reports by the Intergovernmental Panel on Climate Change (IPCC) highlighted greenhouse gas (GHG) emissions, which include peat extraction.

The IPCC classifies peat as a fossil resource because of its non-renewable nature. The importance of preserving carbon sequestration and the storage capacity of peatlands has been widely recognized (Parish et al. 2008, Joosten 2012, Leifeld & Menichetti 2018). GHG emissions from peatland exploitation occur during:

- The combustion of peat (energy use)
- Mineralization of extracted peat
- Mineralization of soil in exploited peatlands

Within the EU, GHG emissions from peatlands are minor compared to those from agricultural soils. However, they are responsible for the highest emissions per hectare compared to other agricultural and natural soils.

Beyond their impact on biodiversity and carbon, peatlands play an important role in water quality and flood control. This latter aspect is crucial in the management of peatland areas in the Netherlands, a country with a high risk of flooding. Furthermore, the exploitation of peatlands increases the risk of land subsidence.

THE DEVELOPMENT OF REGULATIONS ON EXTRACTION AND USE IN GROWING MEDIA

The debate on peat extraction focuses on the balance between environmental damage and economic benefits, particularly for the horticultural and market gardening sectors.

As early as 1998, the Alpine Convention, ratified by the EU and the Alpine regions, established that the peat use should be completely phased out in the medium term.

Some governments have decided to limit the extraction and/or use of peat. The table below lists the regulatory and incentive measures that have been established in a few European countries. A few countries in Northern Europe are leading the way, including Germany, the United Kingdom, Ireland and the Netherlands.

NATIONAL INITIATIVES TO REDUCE PEAT IN HORTICULTURE IN EUROPEAN COUNTRIES

Gruda et al. (2024)

Country	Last statement/goals set on horticultural peat	Form / authority	Documentation
Germany	Hobby sector: 100% reduction by 2026; Professional sector: substantial reduction by 2030. The new government aims to develop an exit plan on peat use and extraction	German Ministry of Agriculture (BMEL)	BMEL (2022)
	Hobby sector: 30% peat rate by 2025 and 10% by 2030; Professional sector: 50% peat rate by 2025 and 30% by 2030	Self-commitment of the industry groups ZVG and VDG	IVG (2020); ZVG and VDG (2022)
	Hobby sector: 50% peat rate by 2025 and 30% by 2030; Professional sector: 80% peat rate by 2025 and 70% by 2030	Self-commitment of the industry groups IVG, BdB and BHB	
Ireland	Hobby sector: 100% peat use reduction by 2025; All sectors: by 2030, maximum 2035	A proposal from the Working group report to the Department of Housing, Local Government and Heritage	Prasad (2021), Government of Ireland (2022)
United Kingdom	England: Hobby sector: 100% peat use reduction by the end of 2024; Professional sector (apart from plant propagation and mushroom casing): 100% peat use reduction by the end of 2026; All sectors: 100% peat reduction by 2030 Wales: Sales ban announced for the hobby sector Scotland: ban the sale of peat in stages, beginning with the hobby sector. Then widen the ban on the sale of peat for professional horticulture.	UK Government	England Peat Action Plan (UK Government, 2021), UK Government (2022a), Welsh Government (2022), Scottish Government (2023)
Switzerland	Hobby sector: 5% peat rate by 2020; Ornamental plants: 50% peat rate by 2025 and 5% by 2030; Landscaping: 5% peat rate by 2025; Vegetables and seedlings: 70% peat rate by 2025 and 40% by 2030	Agreements between the Ministry of Environment and the stakeholders	Torfausstiegskonzept (Federal Council of Switzerland, 2012)
Norway	Hobby sector: 100% peat reduction by 2025; Professional sector: 100% peat reduction by 2030	Norwegian Ministry of Climate and Environment (KLD)	Norway's Climate Action Plan for 2021-2030 (KLD, 2021)
Netherlands	Hobby sector: max. 40% peat in 2025, max. 15% in 2030; Professional sector: max. 65% in 2025, a new target to be set for 2030. Use of RPP peat, the goal for 2050 on climate neutrality in and max. 10% peat in all substrates	Agreement between the government and stakeholders	Convenant Milieu-Impact Potgrond en Substraten (2022)
Flanders (Belgium)	All sectors: 65% peat rate (not including peat with "sustainable" label and non reused peat) in all substrates in 2025	Agreement between the government and stakeholders	Vandecasteele (2022)
Austria	Peat products will be avoided as far as possible	Austrian Government	Moorstrategie Österreich 2030 (BML, 2022)
France	"The peat-free alternative substrates could be addressed on an international level"	French Ministry of the Environment	Plan national milieux humides

EXAMPLE OF THE UNITED KINGDOM:

A PIONEER COUNTRY YET TO BAN PEAT-BASED GROWING MEDIA

The United Kingdom was by far the first country to address peat use from a regulatory perspective. The hobby gardeners potting soils market accounts for 70% of the UK market. However, food production, such as strawberries and other small fruits, also plays an important role among professional users of potting soils.

Several deadlines were set to phase out the use of peat in England: 2005 and then 2011 for individuals, and 2030 for producers. The government's strategy was initially based on voluntary action by the potting soil industry. However, when the targets were not met, the UK government passed a law in 2022 to go towards the ban of the sale of peat products to private individuals from 2025 and to producers from 2027.

It appears that technical solutions have been found for fruits producers growing media. The difficulty lies in the formulation of ornamental plants such as azaleas and hydrangeas.

However, the 2022 regulations include exemptions (UK Media reporting on peat ban for the professional horticulture sector, 24 March 2023) :

- Technical exemptions to produce young plants in plugs and edible mushrooms.
- Conservation exemptions: vulnerable or endangered plant species preservation.

The United Kingdom has been paving the way for a gradual, concerted and then regulatory reduction in plant production peat use. However, while the government has clearly signaled its intention to ban peat use for hobby gardeners and professionals, the necessary legislation has not yet been fully enacted, and no definitive timetable has been confirmed.

As of Spring 2026, attempts to legislate, including a Private Member's Bill currently under discussion in Parliament, remain uncertain. As a result, the sector is currently operating in a context of regulatory uncertainty, as the legal framework necessary for a total ban has not yet been established. This situation has created growing pressure from industry stakeholders for greater clarity and formalization of the regulatory pathway.

THE PARTIAL SUBSTITUTION WITH NEW RAW MATERIALS AS A SOLUTION

Many organic materials can be used in growing media to supplement or replace peat. These materials vary from region to region. The main ones are listed below, according to the study Peat reduction in horticulture – an overview of Europe (Gruda et al., 2024) :

GREEN WASTE COMPOST

Produced from the maintenance of gardens and green spaces, this compost is available in all European countries.

WOOD FIBERS, WOOD CHIPS AND SAWDUST

By-products of the wood and paper industry, these materials are produced in large quantities, particularly in the forestry countries of Northern Europe. Easily compressible, they can be transported at affordable costs over long distances. However, competition with energy outlets is growing and causing prices to rise.

WOOD BARK

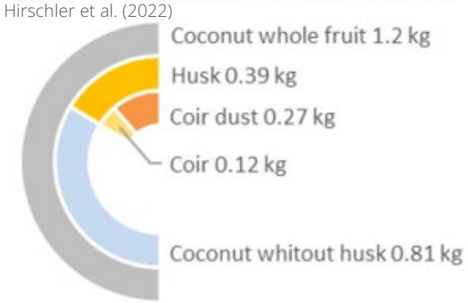
This is a by-product of trunk processing. This material has long been used to replace peat in southern European regions far from peat bogs. Wood bark is sometimes composted before being incorporated into growing media. Bark is also used as a source of energy in sawmills, competing with demand for the manufacture of growing media.


Credits : Clara DIEBOLT

COCONUT COIR PITH

Coir pith is a by-product of the extraction of fibers from coconut shells, which are used for ropes, mats, or car upholstery. Coir pith is also known as coconut peat or coir dust.

Weight and composition of a coconut
Hirschler et al. (2022)



Source: calculated from Raghavan 2010
(originally from Hagen 1995 and Cloin 2005)

These are very fine fibers that are not used by the coconut fiber industry. Coir is mainly imported from Sri Lanka, India, Vietnam, the Philippines and Mexico. Its use in growing media has grown in Europe since the beginning of the 21st century. Beyond the issues of long-distance transport, climatic hazards and geopolitical risks, its availability could be reduced in Europe in the coming decades if the growing medium industry develops in Asia.

OTHER MATERIALS

Many materials as diverse as sheep's wool, sphagnum moss and rice husks have been tested as alternatives to peat in growing media. Certain processing methods can also be used to achieve characteristics like those of peat. Methane production, pyrolysis and hydrothermal carbonization (HTC) are ways of recovering value from local organic matter. The question of costs and available quantities remains decisive for these raw materials.

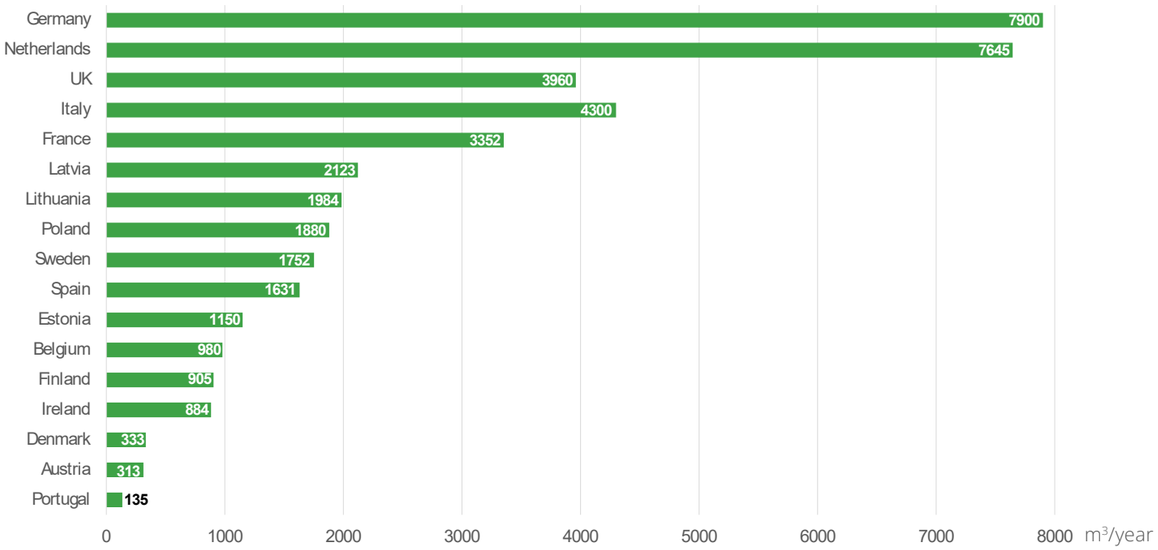
The availability of these various alternative materials is discussed in more detail in a separate chapter.

THE MARKET FOR PEAT-BASED GROWING MEDIA IN THE 2020s

PRODUCTION OF GROWING MEDIA IN EUROPE

The two main countries producing growing media are Germany and the Netherlands, followed by the United Kingdom, Italy and France, each producing around half as much as Germany. These substrates can be composed of peat or other alternatives in different proportions.

GROWING MEDIA PRODUCTION (M^3/YEAR)



▲ *Substrate volumes produced annually in European countries (Hirschler and Osterburg, 2025)*

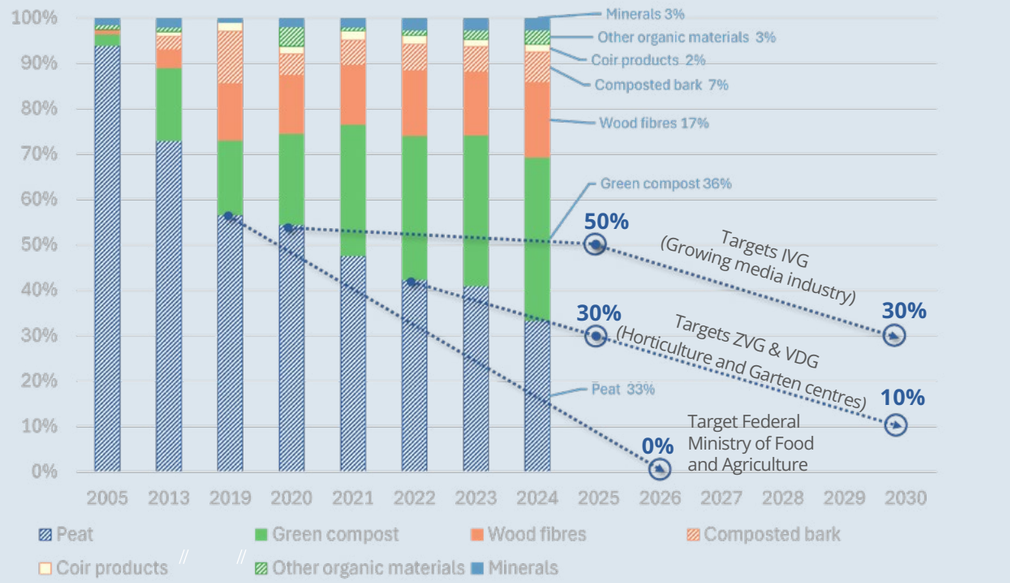
EXAMPLE OF GERMANY: THE LEADING PRODUCER OF GROWING MEDIA IN EUROPE

Germany is Europe's leading producer of growing media, accounting for 7.9 millions m^3 produced in 2025 (IVG, 2026). The country is also a major player in the European peat market, importing large voumes of peat, mainly from the Baltic States, while exporting more than one-third of its growing media production (24 May 2022) .

In Germany, nature conservation and peatland protection can be supported through federal policies and instruments, including Natura 2000. However, responsibility for granting peat extraction permits lies with the federal states (Länder).

Germany has adopted a national peat reduction strategy for growing media. While the Federal Government aims to phase out peat in hobby gardening by 2026 and reduce peat use in professional horticulture as far as possible by 2030, industry stakeholders consider these targets difficult to achieve and have proposed less ambitious objectives.

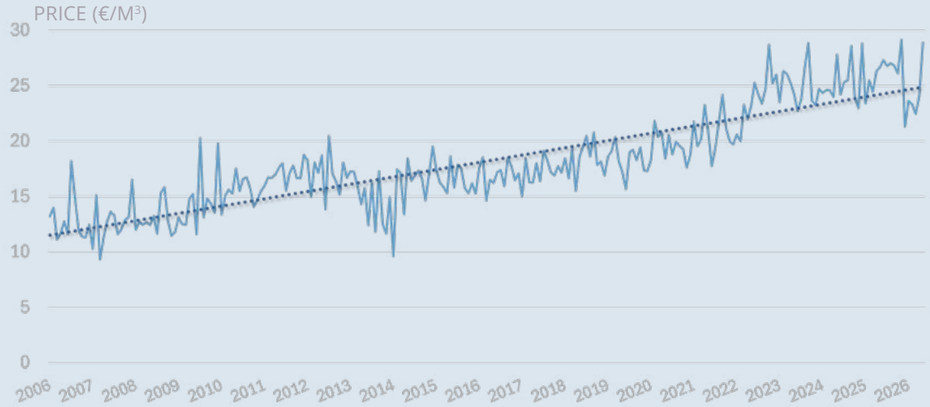
The graph below compares stakeholder targets with the actual evolution of growing media composition in the German hobby gardening market.



▲ *Evolution of the proportion of constituents used to produce potting soils (growing media for the hobby market) in Germany and peat use reduction targets set by stakeholders. (Hirschler and Osterburg, 2025)*

The composition of growing media has already evolved significantly. Between 2014 and 2019, the share of peat in hobby growing media decreased from 59% to 33%, while the market share of peat-free products increased from 7% to 21%.

At the same time, peat prices have increased steadily over the last two decades. The average import price of peat rose from less than €15/m^3 in 2006 to more than €25/m^3 in 2026.



▲ *Evolution of the average price of imports of peat and peat products (based on Hirschler and Osterburg, 2025) - data updated up 2026 (Destatis)*

Despite this increase, raw materials, including peat, account for only a limited share of the final price of growing media. Between 2020 and 2024, growing media prices in Germany increased by more than 30%, largely driven by rising energy, transport and production costs.

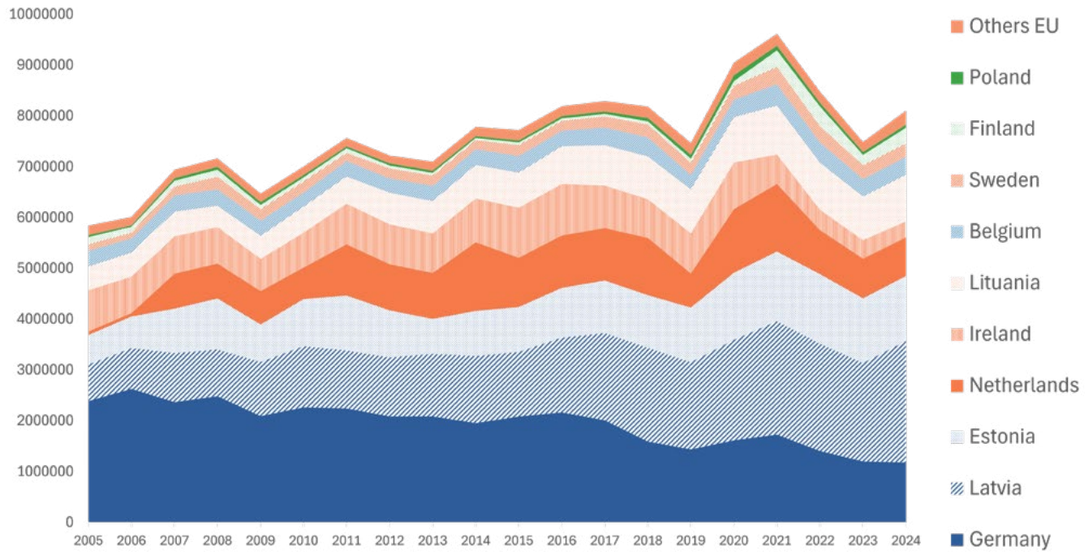
TRENDS IN PEAT PRODUCT FLOWS

METHODOLOGY

Trade Map (https://www.trademap.org) is an online trade data analysis tool developed by the International Trade Center (ITC) that provides trade flow information. Peat products are listed under the "2703" code product. This code does not distinguish explicitly raw peat, processed peat products and the uses of peat.

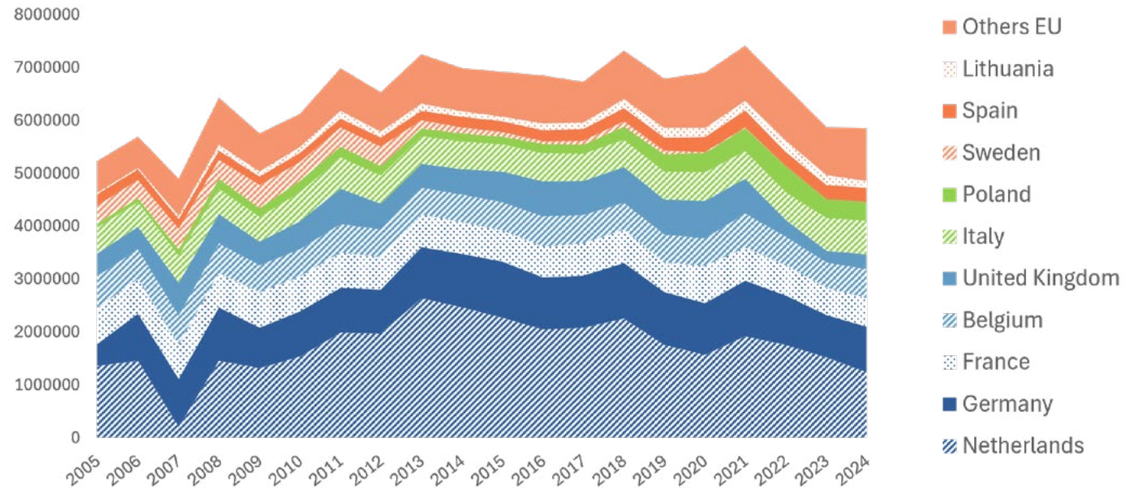
The 2 following charts are drawn up from Trade Map datas. They show 2703 products flows evolution between 2005 and 2024 for the main Europeans exporters countries, and the main European importers countries.

TOP 10 EXPORTERS OF PEAT PRODUCTS (2703) IN UE 28 FROM 2005 TO 2024 (IN TONS)



▲ *Export of peat products (2703) in tons from 2005 to 2024 by major exporter countries of the EU (Trademap)*

TOP 10 IMPORTERS OF PEAT PRODUCTS (2703) IN UE 28 FROM 2005 TO 2024 (IN TONS)



▲ *Import of peat products (2703) in tons from 2005 to 2024 by major importer countries of the EU (Trademap)*

THE RISE OF THE BALTIC

Between 2005 and 2024, exports of peat products from Germany and Ireland halved in weight. This decline accelerated after 2020 in the context of increasing regulation regarding peat extraction. During the same period, Latvia, Lithuania and Estonia have significantly increased their exports of peat products.

The Baltic States have become the main source of peat for Europe, while countries such as the Republic of Ireland, the United Kingdom (Scotland) and, to a lesser extent, France are gradually phasing out extraction.

The Baltic States also has significant wood resources. Factories produce a mix of peat and wood fibers that are exported to factories where the composition is further modified to produce growing media. These two local raw materials are a source of employment in rural areas in those regions.

THE BEGINNING OF A RELOCATION OF GROWING MEDIA PRODUCTION SITES

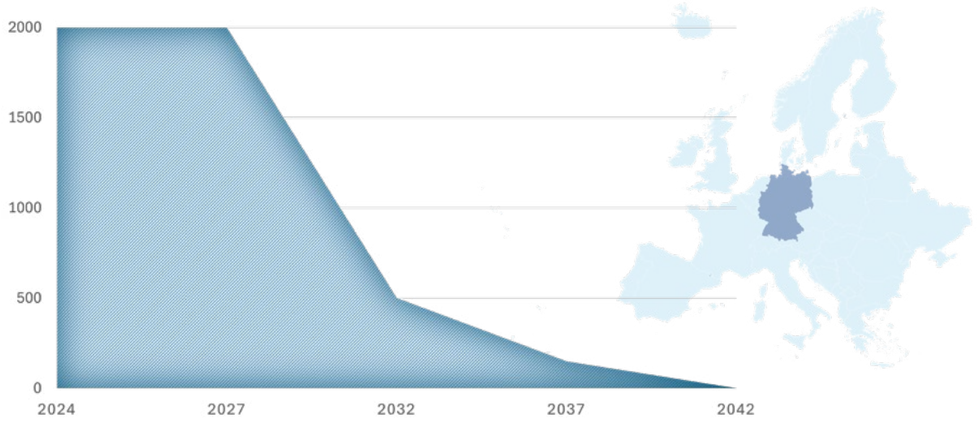
Some multinational companies, whose growing media manufacturing plants were previously located at the foot of the peatlands they exploited, began relocating some of their factories in 2020 to countries that consume their products, close to sources of alternative raw materials to peat.

For example, Klasmann-Deilmann has opened two new sites in France: one in a large port near Marseille in 2021, and the other in the Landes region, closer to wood resources, in 2024.

THE EFFECT OF NATIONAL REDUCTION TARGETS ON PEAT MINING

Countries that have historically been major peat producers are significantly reducing the number of extraction site permits they issue (Germany, Ireland, the United Kingdom, Norway, etc.), largely making up for the shortfall in locally extracted peat through imports from the Baltic States.

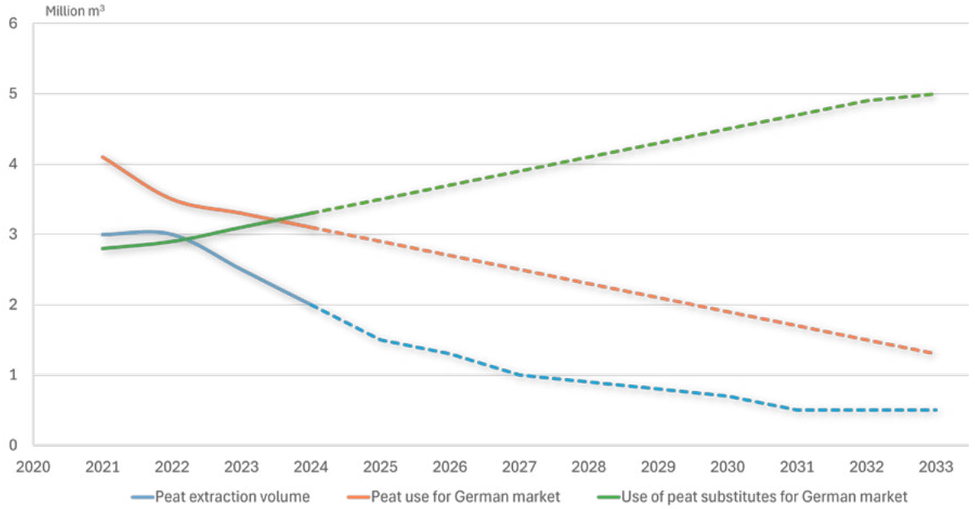
ACTIVE PEAT EXTRACTION SITES IN GERMANY (IN HECTARES)



The southern Europe countries (France, Switzerland, etc.), which are less affected, have for the most part already banned mining.

The squeeze caused by declining extraction and the availability of alternative materials is prompting horticulturists to raise the alarm with governments, particularly in Ireland and Germany. In Germany, the IVG (epresenting the German growing media industry) has highlighted the need to import peat extracted in the Baltic States to meet demand, pointing out the contradictions in policy decisions.

PROJECTED PEAT EXTRACTION VOLUMES IN GERMANY OVER THE NEXT 10 YEARS IN RELATION TO OTHER KEY INDICATORS FOR THE GERMAN SUBSTRATE MARKET



▲ *Projected peat extraction volumes in Germany over the next 10 years in relation to other key indicators for the German substrate market. (Source: Results of the IVG survey on active peat extraction sites, current permits and remaining peat reserves in Germany – Düsseldorf – May 2024)*

METHODOLOGY

From 2024 onwards, values are based on modelling results. The model assumes constant total growing media production, an annual increase of 0.2 million m³ in substitute raw materials, and a corresponding decrease in peat use. Any gap between domestic peat extraction and peat demand in the German market is assumed to be covered by imports

Source : Results of the IVG survey, 2024 (https://ivg.org/2024/05/06/heimische-torfvorraete-deutlich-geringer-als-angenommen/

THE EXAMPLE OF THE GERMANY:

EFFECT OF NATIONAL REDUCTION TARGETS ON PEAT USE

At the same time, incentive schemes aiming at reducing the use of peat-based potting compost continue to be implemented. In Germany, a survey of the Agency for Renewable Resources (FNR) shows that efforts to raise awareness and provide information to consumers about the impact of peat are beginning to bear fruit.

Awareness of the negative impacts of peat use on the climate has risen. By 2025, 44% of people are aware of peat climate relevance, which is a significant increase compared to 33% in 2023. Peat content is also now a relevant purchasing criterion for 44% of respondents.

However, in 2024, hobby gardening soils still contained around 34% peat (IVG, 2024). The politically set target of a complete phase-out of peat in hobby gardening by 2026 in Germany is unlikely to be met.


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LONG-TERM OUTLOOK FOR THE GROWING MEDIA MARKET

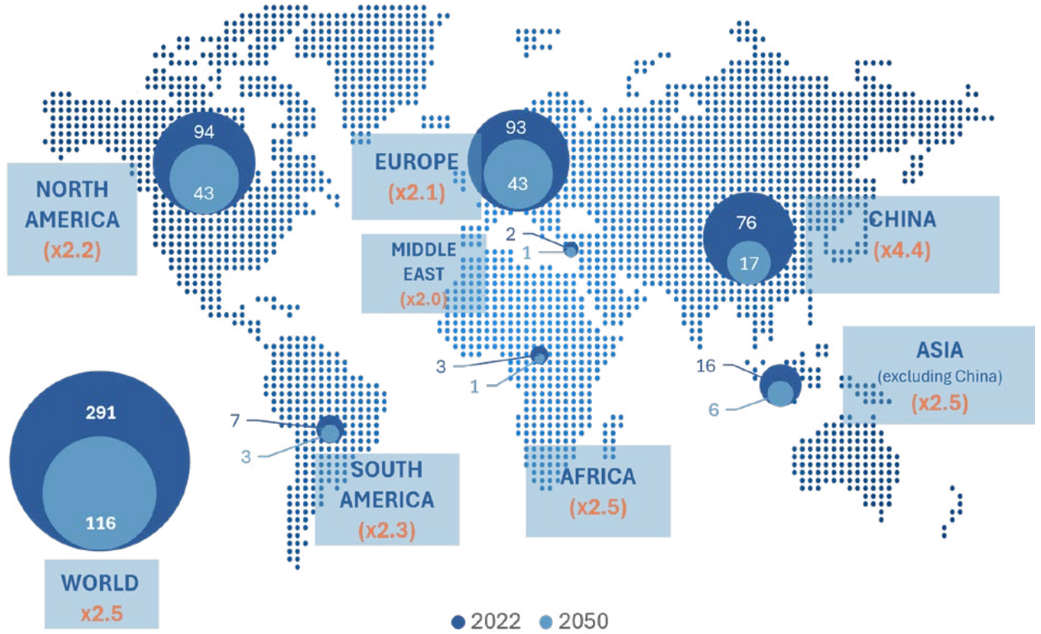
STRONG GROWTH IN DEMAND WITH CHINA AS THE MAIN GROWTH DRIVER

According to an updated study by Wageningen University & Research (Nguyen et al.,2026), global demand for growing media is expected to increase by approximately 250-290% between 2022 and 2050, corresponding to an almost fourfold increase compared with current levels. The projected growth is driven by several factors:

- Global population growth and rising incomes
- Increased consumption of fruits and vegetables
- Growing demand for ornamental plants and nursery products
- Continued expansion of soilless cultivation systems

Using updated market data and regional projections, the authors estimated future growing media demand across major world regions and market segments. The projected regional evolution of growing media consumption is presented below.

PROJECTED GROWING MEDIA CONSUMPTION BY REGION BETWEEN 2022 AND 2050 (MILLION M³/YEAR) Source: Nguyen et al. (2026)



The strongest increase in growing media demand is expected in China and other emerging markets in Asia. By 2050, growing media consumption in China alone could reach more than 75 million m³ per year, compared with approximately 17 million m³ in 2022. Europe and North America are expected to remain the world's largest markets in absolute terms, each exceeding 90 million m³ per year by 2050, while China is projected to experience the fastest growth.

TOWARDS A DECREASE IN THE PROPORTION OF PEAT IN GROWING MEDIA BUT NOT IN VOLUME

Despite a strong reduction in peat share within growing media formulations, peat is expected to remain a major constituent of professional growing media. The 2026 projections suggest that peat demand could remain relatively stable in volume terms, while its market share decreases substantially as alternative raw materials such as coir, wood fibre, bark and compost continue to expand.

OBSTACLE NO. 1: AGRONOMIC PERFORMANCE AND CHANGES IN PRACTICES

Interviews with industrial producers reveal that a distinction must be made between two types of use of growing media:

- Potting soil for «open ground» crops
- Soil-less growing media

The main advantage of peat over other raw materials used in the manufacture of growing media is its very high-water retention capacity.

Total porosity of six traditional and alternative substrate components (Jeb S. Fields, 2014).

	Total porosity (linked to water retention capacity)
Peat	91
Coir	88.7
Shredded pine wood	84.1
Pine wood chips	78.8
Pine bark	76
Perlite	66.4

In the case of outdoor crops, the volume of root exploration allows plants to capture water beyond the volume of potting soil added. The addition of potting soil aims to improve the texture of the topsoil. It is easy to reduce the proportion of peat, and it is possible to do without it altogether.

In the case of soilless crops, the roots only have access to the volume provided in the form of growing media. The amount of water is limited and becomes the main factor limiting the survival and growth of the plant. Peat plays a key role in these soilless growing media. Growing media producers working on peat reduction told in interviews that the ability to reduce the proportion of peat in the composition of potting soils was closely linked to the volume of the containers. Thus:

- Large nursery pots: 50% to 60% reduction
- Bedding plants, vegetables: 40% reduction
- Trays: impossible to reduce the proportion of peat

Manufacturers of growing media insist on the need for horticulturists and other plant producers to change their agricultural practices when switching from peat-based to peat-reduced or even peat free growing media. The main change concerns the frequency of irrigation. Plants grown in peat-free media need to be watered more often due to the lower water retention capacity of alternative materials. Adjustments to nitrogen fertilization may also be necessary, as the nitrogen dynamics are different between peat substrates and substrates containing wood fiber or bark. The transition must be gradual to limit the risk of losses.

OBSTACLE NO. 2:
AVAILABILITY OF SATISFACTORY ALTERNATIVE RAW MATERIALS (QUANTITY, QUALITY)

METHODOLOGY

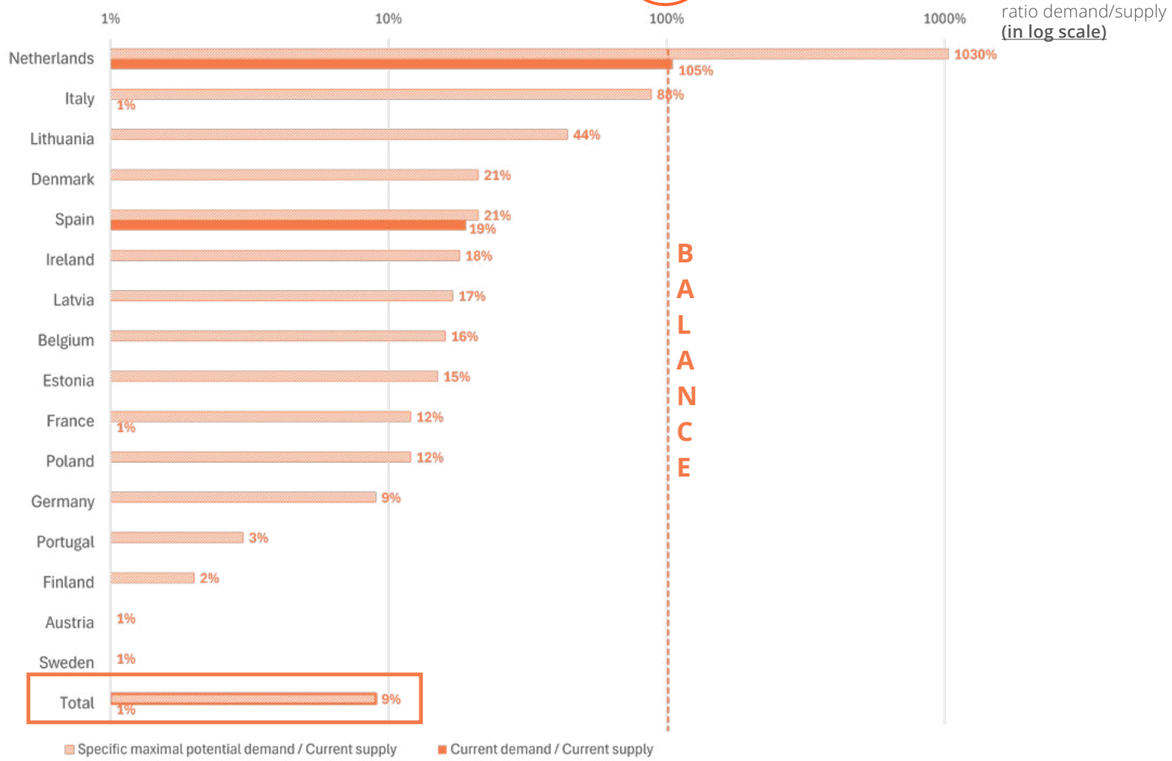
The study by *Hirschler O, Osterburg B, Weimar H, Glasenapp S, Ohmes M-F (2022) Peat replacement in horticultural growing media: Availability of bio-based alternative materials. Braunschweig: Johann Heinrich von Thünen-Institut, 64 p, Thünen Working Paper 190, DOI:10.3220/WP1648727744000* analyses the availability of alternative bio-based materials. The four main alternative biomasses to peat for the manufacture of growing media are:

- Wood fibers
- Composted bark
- Green compost
- Coir pith

Other materials of agricultural origin are mentioned, such as cultivated sphagnum moss, rice bran, corn fibers and miscanthus.

For each of the four main materials, the current supply is compared with the maximum potential demand in the future.

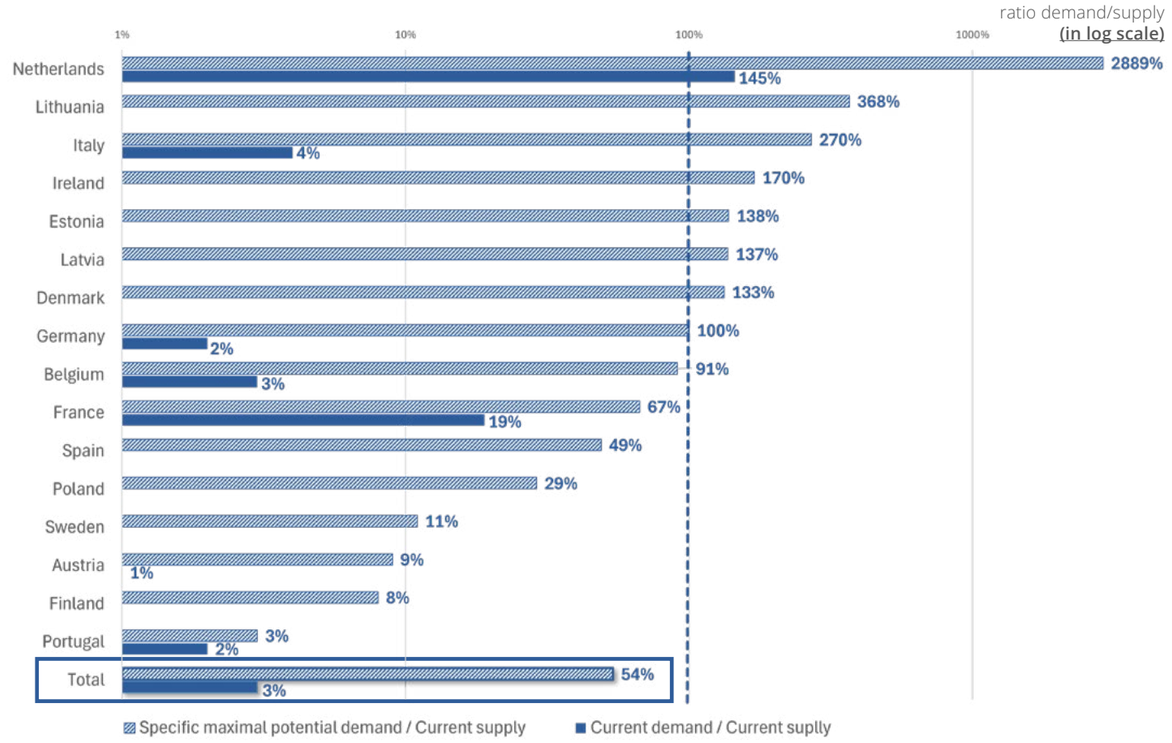
SAW MILL BY-PRODUCTS



▲ *Ratio between demand for wood for growing media production and potential supply of sawmill by-products in selected European countries (Hirschler, et al., 2022)*

Sawdust and wood chips resources are more than sufficient to replace part of the peat used in growing media in all countries except the Netherlands, which is currently a major importer of peat. At the European level, maximum demand would represent 9% of sawdust resources.

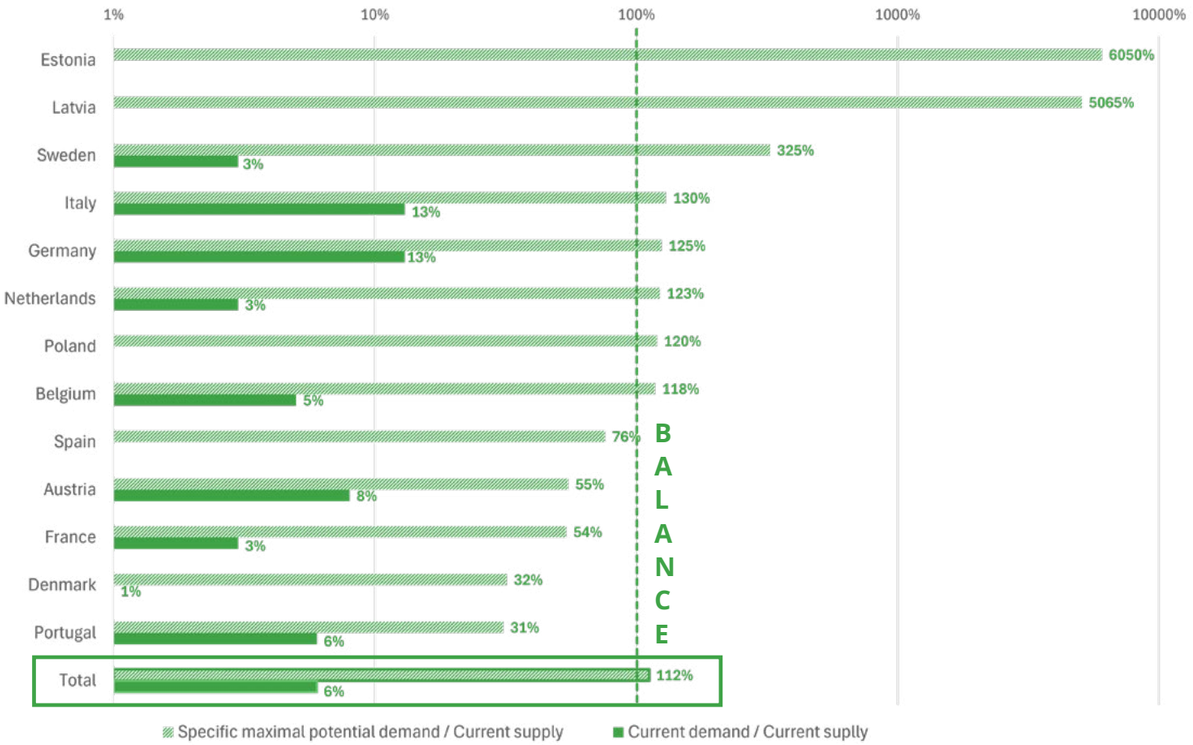
WOOD BARK



▲ *Ratio between demand for wood for growing media production and potential supply of sawmill by-products in selected European countries (Hirschler, et al., 2022)*

The need for bark to replace peat is expected to account for half (54%) of maximum demand at European level in the future. However, the situation varies considerably from one country to another, with some countries not expected to be self-sufficient for this resource in the future. Intakes between European countries would be necessary. The Netherlands is already not self-sufficient for the quantity of growing media currently produced (45% deficit).

GREEN WASTE



▲ *Ratio between demand for green compost for growing media production and current potential supply in selected European countries (Hirschler, et al., 2022)*

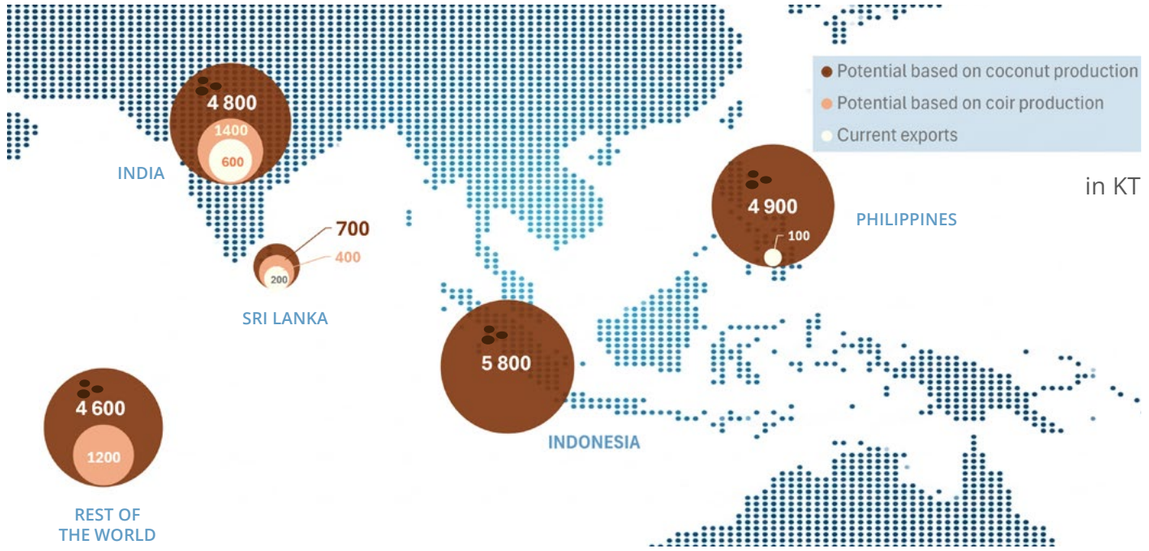
Green waste is not widely collected. Most of it remains where it is produced and is used on site. This can be explained by two factors:

- The cost of transport. It is wet, dense waste.
- The lack of composting facilities.

Given that material recovery would be more beneficial than recycling in the form of soil fertilization, it is assumed that a public incentive policy would increase the collection rate and the number of composting sites to supply growing media producers.

With these measures in place, it would be possible to achieve self-sufficiency at the European level.

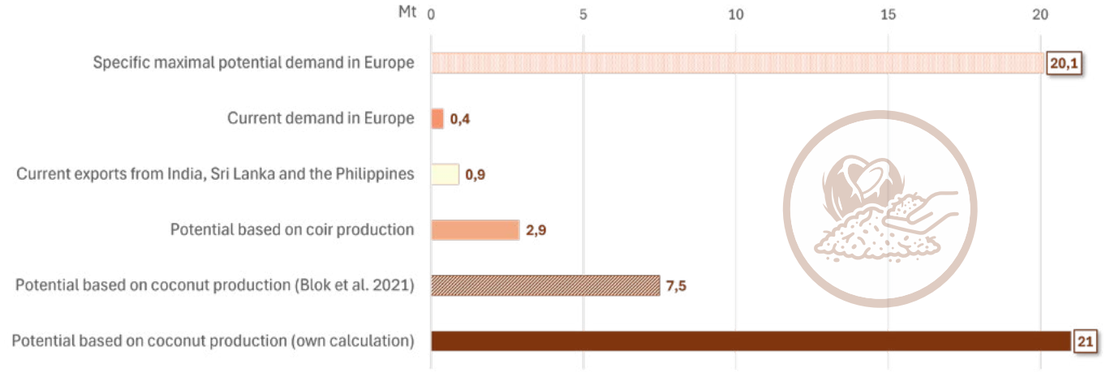
COCONUT CO-PRODUCTS



▲ *Potential production and current exports in kT of coir by-products (coir dust) (Hirschler, et al., 2022)*

Coir pith is currently underutilized, or even hardly used at all in Indonesia and the Philippines. Large quantities of coir pith are lost and left in piles near factories, causing environmental problems. There are two reasons for this underutilization: the very low price of coir pith and the high cost of transporting it to European countries.

It can be assumed that if there is strong demand from producers of growing media in the future, the purchase price of coir pith in Asia will increase, leading to a significant mobilization of resources. There are currently no other uses for coir pith other than as raw material for growing media.



▲ *Comparison of world potential and European demand for coir by-products (Hirschler, et al., 2022)*

In this graph, the calculation of maximum future demand assumes that peat will be replaced entirely by coir pith. Asia would therefore produce enough coir pith to meet the needs of European growing media producers. However, the future development of demand from China and other Asian countries, which are closer, will strongly compete with Europeans for this biomass.

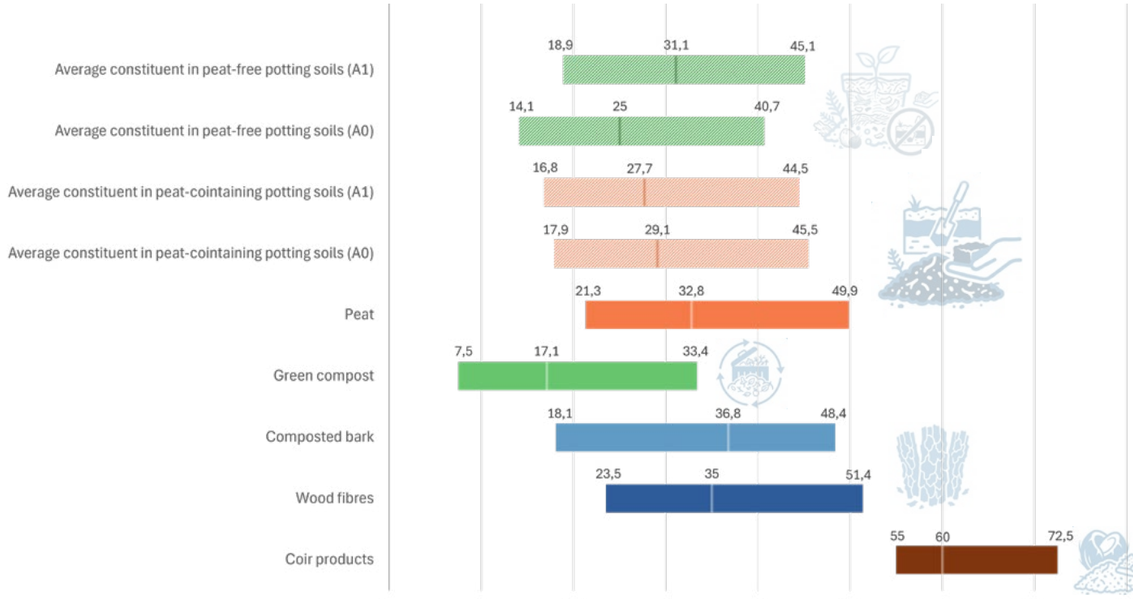
In conclusion, at the European level, only the maximum demand for green compost could exceed the resource produced, while the maximum demand for coir pith could be limited. At the level of individual European countries, it is the peat-producing countries and those producing growing media, such as the Baltic States and the Netherlands, that could be limited by their resources of alternative biomass.

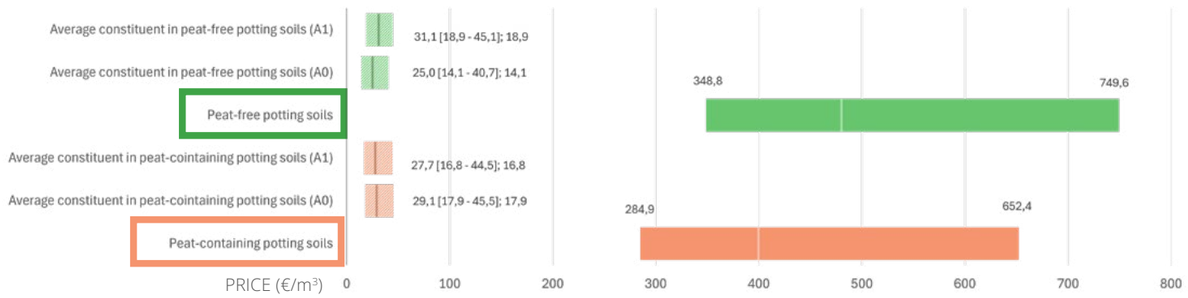
OBSTACLE NO. 3:
COST OF PEAT-FREE GROWING MEDIA AND MEASURES TO BE TAKEN BY LEGISLATORS

METHODOLOGY

The study *Achieving peat-free hobby gardening for climate mitigation in Germany: Insights into prices of growing media constituents, potting soils and policy options* (Hirschler and Osterburg, 2025) analyses the pricing of growing media constituents and potting soils in Germany.

The graph below shows the cost ranges for the various inputs that make up these products. While the price of raw materials ranges from €17/m³ (average for compost) to €60/m³ (average for coir), the price of growing media is between €400 and €500/m³. Furthermore, price trends between 2020 and 2024 show that the price of growing media is more closely correlated with energy and transport





prices than with component prices.

▲ Prices (medium, low and high values) of growing media components, potting soils and input components in potting soils (€/m³). (Hirschler and Osterburg, 2025) A0) Equal proportion of non-peat constituents in peat-free potting soils; (A1) Proportion respecting technical limitations for constituents.

If the price of inputs has little impact on the final price of growing media, what factors can explain the nearly 25% price difference between peat-based and peat-free growing media?

According to German manufacturers surveyed in the study by O. Hirschler and B. Osterburg, there are five reasons for the higher cost of peat-free potting soils:

- Storage, mixing and quality control costs for a greater number of raw materials
- Higher fixed costs (marketing, facilities, etc.) due to smaller volumes processed
- Higher transport and installation costs due to bulkier materials
- Higher customer management costs due to complaints from users of peat-free potting soils
- Higher margins are made possible by customers' desire to buy an environmentally friendly product and/or less competition between producers

The authors of the study predict a gradual decline in sales of peat-free soils for leisure use. They believe that other levers should now be activated to maintain the growth in purchases of peat-free substrates.

Potential measures to be implemented by public authorities are:

- Subsidies for peat-free growing media
- Taxation of peat-based potting soils
- Ban on the use of peat

EXAMPLE OF FRANCE:

A SKEPTICAL ATTITUDE AND LACK OF AWARENESS OF FARMERS REGARDING ALTERNATIVES TO PEAT

A survey of farmers using potting soil in France (see Appendix page 34) shows that they buy peat-based growing media in almost all cases. As a critical material for these specialized plant productions, potting soil is primarily chosen for its agronomic capabilities, its properties that boost germination, and its water retention rate.

Price is the second most important selection criteria, even though it has led to a reduction in the proportion of peat used by some professionals. The increase in transport costs since 2022 has led to a rise in the cost of peat, which is transported from North-Eastern Europe to France.

Unlike their German counterparts, French farmers are largely unaware of the environmental impact of peat extraction. Some have started to grow part of their produce without peat in response to demand from their British customers, who are bound by regulations. The general demand is that if such a policy were to be introduced in France, they would be given time to gradually adapt their agricultural practices without jeopardizing their production. Some of these farms are subject to fierce competition on the market.

ADAPTATIONS ARE UNDERWAY AMONG GROWING MEDIA MANUFACTURERS

METHODOLOGY

Four growing media manufacturers were interviewed and two trade associations representing these companies, the French trade association and the European trade association.

List of organizations and individuals interviewed:

Organisation	Individuals
Premier Tech	Guillaume Roth and Pauline Emerit
Dumona	Cédric Abriat
Klasmann-Deilmann France	Lionel Debauge, Chantal Le Coguic
EVADEA	Frédéric Dutertre
AFAÏA	Selma Lagouarde
Growing Media Europe (GME)	Alexander Sentinella

A DIVERSITY OF COMPANIES

The substrate production market is home to companies of extremely varied sizes and organizational structures. Some are regional in scope, others European, and the largest are global in scale with separate subsidiaries for their activities (supply, R&D, marketing, etc.) and/or countries of operation.

All soil producers share the activity of manufacturing, or «assembling» raw materials, which is the core of their business. They were all originally «extractors», located as close as possible to peat bogs or forests to collect bark. This stage is no longer systematically managed with, for example, the cessation of peat bog exploitation in France. Finally, some have structured themselves with the aim of controlling all stages of manufacturing, from the production of alternative materials to peat to manufacturing, including R&D and technical advice to customers.

STRATEGY REGARDING THE PEAT CONTENT IN SUBSTRATES

Growing media companies and their trade unions are working to reduce the proportion of peat in their products. The reasons behind this approach differ depending on the region where these companies are based.

Historically, French and North American producers have prepared potting soils with a much lower proportion of peat (30 to 70%) than producers in Northern Europe (80 to 90%). However, they have recently created substrates with even less peat, or even no peat at all, to meet the demands of some of their customers. Some local authorities have chosen to source peat-free potting soil. Nursery growers and horticulturists with outlets in the United Kingdom also need peat-free potting soils to comply with British regulations. It is therefore demand that has driven this change.

Conversely, producers based in Northern Europe have long produced potting soil with a very high proportion of peat (>80%). Incentive policies introduced by the governments of some countries in this part of Europe have led to a drive within these companies to reduce the peat proportion.

GME, the European trade association for growing media producers, advocates improving the overall environmental footprint of growing media (life cycle assessment) rather than eliminating peat.

RAW MATERIAL SUPPLY: A CRITICAL STEP FOR PRODUCERS

All producers have tested the main alternatives to peat: wood fiber, coconut coir, bark and green waste compost. Their views on these new materials are unanimous: none of them can completely replace peat. The difficulty for them lies in sourcing these materials, as the raw materials market is under pressure.

Wood bark has been used in France since the 20th century, and the supply chains are well established and sustainable. Wood fiber and green waste compost have other uses besides as materials for potting soil, particularly in the biomaterial and organic fertilizers sectors. Competition is fierce for these two materials. The third alternative, coconut fiber, must be imported from Asia or Africa. Some producers have organized themselves to secure supplies of coconut fiber by setting up operations in these non-European countries. However, there are serious concerns about Asian buyers, who have the advantage of being located close to these sources. Finally, manufacturers' access to peat is changing. The concentration of peat bog operators in the Baltic States is underway with the arrival of global groups on the market. It is becoming difficult to find independent traders to buy peat, contrary to what has been the practice for several decades.

CLIMATE CHANGE AND THE RISE OF CHINESE PLAYERS

The companies surveyed cited these two threats for their future. Climate change is already having an impact on the availability of raw materials. The very rainy summer of 2024 reduced the weather windows for extracting peat in the Baltic, impacting the quantities of marketable peat and consequently its price. The acquisition by Chinese companies of peat bogs in the Baltic States and coconut fiber production sites in Southeast Asian countries is accelerating. European substrate producers fear that these two factors combined will cause shortages in the raw materials markets.

DIVERSIFICATION AND DEVELOPMENT ABROAD

The growing media market is mature in France and Europe, with constant volumes of potting soil being sold. Horticultural operations are consolidating, the plant nursery sector has experienced difficult years but is currently stabilizing, and soilless production is growing.

The potting soil market has become highly competitive. In the garden centers and private customer segment, competition has been fierce for a long time, driving prices down. In the professional market, price has become the determining factor, sometimes to the detriment of quality and technical performance.

Between rising transport costs, reducing margins and investments to buy out companies, some growing media businesses are finding themselves in significant financial difficulty.

Several strategies are being implemented by potting soil producers:

- Product diversification, by expanding the range of products they offer to their customers (mulches, soil improvers, etc.)
- Diversifying their customer base, for example by targeting local authorities or public works companies
- Developing increasingly specialized growing media, technically adapted to specific plant species (e.g. strawberries, melons, etc.) to break into a niche market
- Expansion abroad, particularly to the Mediterranean basin and South-Eastern European countries.

These strategies enable producers to be more resilient in the face of competition and market fluctuations.

The cultivation medium manufacturing industry is constantly evolving. These companies must adapt to diversify their raw materials, products and markets in a tense and uncertain economic climate.

CONCLUSION

The use of peat to produce growing media varies depending on the presence or absence of peatlands in the local area. Countries in northern Europe used peat almost exclusively to produce their potting soils, while countries in southern Europe frequently used more than 50% of other materials available locally. However, the unrivalled agronomic properties of peat, its abundance and the low cost of extraction have fostered the growth of an economic ecosystem for growing media in countries such as Germany, the Netherlands and Belgium, supplying all European countries. The rise of climate issues at the beginning of the 21st century led to the introduction of restrictive measures by the governments of the United Kingdom and Germany, among others, prompting some manufacturers to reduce or even eliminate peat in potting soils. Among the alternatives to peat, four main co-products are used: bark, wood fiber, green waste compost and coconut coir, imported from Asian and African countries. However, there are many obstacles to their substitution for peat, notably their agronomic quality and availability. Nevertheless, it seems that eliminating peat from growing media is technically possible for potting soils used by the public for «open ground» gardening and those used by nursery growers in large containers. Reducing the proportion of peat is feasible for pot and clump crops, but unrealistic for mini-clump or cell seedlings.

Looking ahead, economists predict a sharp increase in demand for growing media in the medium term, mainly due to growing demand in Asia. Consequently, the need to find alternatives to peat for producing these potting soils appears even more pressing. Supporting farmers (horticulturists, nursery growers, seedling producers, etc.) in adapting their irrigation and fertilization practices to this change is essential to the success of this transition.



Credits : Clara DIEBOLT

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APPENDIX

SURVEY OF 10 GROWING MEDIA USERS IN THE PAYS DE LA LOIRE

In September 2025, the Chamber of Agriculture of Pays de la Loire conducted interviews with 10 professional growing media users. The objective was to understand their practices regarding the use and sourcing of growing media, their criteria for selecting different growing media according to their production systems, and their awareness of the environmental impacts associated with peat extraction. This survey has no statistical or scientific value; it reflects the views of a small group of farmers representing a range of horticultural production systems.

The panel comprised 10 agricultural holdings from the Pays de la Loire region:

4 Vegetable Seedling Producers

- 2 specialised vegetable plant producers operating on a national scale;
- 2 market gardeners producing their own seedlings.

These growers use growing media for seed sowing, mainly in small plugs. For the specialised producers, growing media use is extensive, whereas for the market gardeners it is much more limited.

4 Nursery Growers Producing Ornamental Plants

They use growing media for both seed propagation and potting-on. They begin with very small containers at the start of the growing cycle (a few cm^3), before transferring plants into larger containers later on (up to several dozen litres).

2 Rose Plant Producers (Horticultural Growers)

One is a heavy user of growing media, while the other uses relatively limited quantities.

SUPPLIERS AND VOLUMES USED

Sourcing practices vary considerably.

Farms may rely on either a single supplier or multiple suppliers (reflecting either loyalty or competition between suppliers).

Suppliers may be local (Tourbières de France, Florentaise, etc.) or international (Klasmann-Deilmann, Premier Tech, Dumona, Kekkilä-BVB, etc.).

Volumes used range from 1 m^3 to 30,000 m^3.

PRICES AND PRICE TRENDS

Some farmers using relatively small volumes of growing media (<80 m^3) purchase bagged products for ease of handling on the farm. Purchase prices in these cases exceed €100/m^3 including VAT.

Others, purchasing either in big bags or in bulk, buy growing media for less than €100/m^3 including VAT, transport costs included. This threshold appears to represent a strong psychological ceiling, even for technically demanding growing media products.

For most respondents (7 out of 10), growing media constitutes a significant expense, ranking either first or second among operational costs.

Between 2021 and 2025, the cost of growing media increased by between 10% and 30% for most respondents, which they largely attribute to rising transport costs.

For some growers, these increases were moderated through efforts to reduce the volume of peat purchased, either by lowering moisture content requirements or by partially substituting peat with bark-based materials.

One nursery grower succeeded in maintaining stable prices, mainly through the adoption of peat-free growing media.

KNOWLEDGE OF PURCHASED PEAT AND ITS ENVIRONMENTAL IMPACT

Farmers generally have a good understanding of the type of peat contained in the growing media they purchase (blonde, brown or black peat, etc.) and its origin (Germany, the Baltic States, formerly Ireland, and Canada when European harvests are poor). These characteristics are often regarded as indicators of product quality.

Knowledge of the environmental impact of peat extraction is less detailed. Farmers are generally aware that peat extraction is not environmentally benign. Impacts on peatland ecosystems are sometimes mentioned, whereas the carbon and climate implications are much less well understood (recognised by only 2 out of 10 respondents).

Some respondents also highlighted the relatively small proportion of peatlands exploited for horticultural use compared with energy production, as well as the restoration of peatlands following extraction.

CRITERIA FOR PURCHASING GROWING MEDIA

For organic farmers, the primary requirement is that the growing media be certified for use in organic farming.

This certification, governed by European Regulation (EU) 2021/1165, permits the use of peat in growing media intended for horticulture, market gardening, floriculture, arboriculture and nursery production.

Beyond this certification, the most important purchasing criterion identified by respondents is the agronomic performance of the substrate (7 out of 10 respondents), followed by price as the second most important factor.

The proportion of peat in the growing media is considered one parameter among others affecting agronomic performance and price; it is not regarded as a criterion in its own right.

TRIALS TO REDUCE PEAT CONTENT OR ADOPT PEAT-FREE GROWING MEDIA

Five farmers reported having tested reduced-peat growing media, either through small-scale trials or more extensive commercial production.

These were primarily ornamental plant producers (4 out of 5), either during propagation or later cultivation stages.

One nursery grower tested peat-free growing media for containers larger than 10 litres.

Two nursery growers adopted peat-free production in response to demand from customers in the United Kingdom, where the use of peat in horticultural growing media was due to be prohibited from 2026.

One of these growers, motivated by environmental concerns, has extended peat-free growing media to 80% of production. This transition was achieved gradually, alongside adjustments to irrigation practices.

A vegetable seedling producer supplying market gardeners also reduced the peat content of its growing media by 40%.

SUMMARY OF FACTORS ENCOURAGING OR DISCOURAGING THE USE OF PEAT-FREE OR REDUCED-PEAT GROWING MEDIA

(ACCORDING TO FARMERS)

Factors Encouraging Adoption

- Customer demand.
- Regulatory drivers (for example, developments in the United Kingdom). Large-scale plug production.
- Prices that are less dependent on transport costs, as peat is sourced from distant locations whereas many alternatives can be locally available (except coconut coir).
- Sufficient time to adapt irrigation practices.
- Better information and awareness regarding the environmental impact of peat extraction from peatlands.

Factors Discouraging Adoption

- Concerns about the agronomic performance of peat-free growing media.
- Lack of customer interest or demand.
- Very small plug production volumes, particularly for vegetable seedling propagation.
- Limited information and awareness.
- Lack of peat-free product offerings from growing media suppliers.

REQUESTS EXPRESSED BY FARMERS FOLLOWING THE SURVEY

At the end of the interviews, several farmers stated that the agricultural sector should be involved in any future discussions should France consider developing a strategy to reduce peat marketing and use.

They emphasised the need for **medium- to long-term timelines,** allowing producers sufficient time to anticipate changes and gradually adapt their cropping systems and growing media practices.