



# Socio-economic impact of the peat and growing media industry on horticulture in the EU

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## Summary

On behalf of the European Peat and Growing Media Association (EPAGMA) the consultancy firm CO CONCEPT conducted a survey attempting to collect as reliable data as possible on peat production, the amounts of peat used in all sectors of usage. Part of the study is based on the results of a questionnaire sent out to country coordinators who were responsible for the data collection. In addition the consultancy collected data on the European horticultural sector. The input was compiled to become a comprehensive document. The objective of the study was to provide data on the impact of peat and growing media for the industry itself and for use in the ongoing debate between the various stakeholders. The study elucidates the size of European horticulture and the size and importance of peat-based growing media in professional horticulture and the hobby market.

**Key index words:** employment, environmental issues, horticultural segments, market value, peat properties

## Introduction

The peat industry is a comparatively small industry. However, the economic significance of raw materials does not result from data on their extraction, mining or processing, but from their usage (DIW 1999). The European Peat and Growing Media Association (EPAGMA) with its headquarters in Brussels represents that industry at European level and acts as an interface between its member companies and their organizations and EU institutions, national governments, national peat and growing media associations and other stakeholders. Up to now the industry has only insufficient data on the industry itself but even less on its impact on horticulture in the EU as the main customer of the peat and growing media industry. Furthermore, there is an ongoing debate between the peat and growing media industry and environmental organizations on the need and impact of peat extraction and the need, availability and quality of materials other than peat for horticultural use. In order to react on this ongoing debate but also to obtain reliable data for its members and other stakeholders and interested parties, EPAGMA decided to develop a study on the "Socio-economic impact of the peat and growing media industry on horticulture in the EU".

## Methodology of data collection

In 2007 EPAGMA commissioned CO CONCEPT, a marketing consultancy specialized in the agriculture and horticulture sector and located in Luxembourg, to produce facts and figures of the main horticultural segments in and outside the EU with emphasis on certain EU member states. Subsequently, an overall picture of the peat and

growing media industry in the EU in relation to the horticultural industry in Europe could be provided.

The task to collect raw data on the peat and growing media industry was assigned to Paul Waller Consulting (PWC), United Kingdom. For this purpose a questionnaire covering specific horticultural aspects including national peat production, raw peat consumption, imported finished products, manufacture of growing media for various segments of horticulture, sales of growing media, and employment was developed and sent to selected country coordinators in 2006. In some cases these were representatives of national peat and/or growing media associations, in other cases individual experts with a network of expert sources. For better understanding and to avoid misunderstandings and misinterpretation notes on defined specific terms related to peat and growing media production and the different horticultural segments accompanied the form sheet. In principle, data for the year 2005 were requested. The country coordinators were responsible for collecting data from peat and growing media producing companies in their countries.

A differentiation was made between so called 'Producer Countries' and 'Consumer Countries'. Producer countries are considered to be main peat extracting and processing countries in the EU (Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Poland, Sweden, and United Kingdom). Consumer countries are countries with no or only insignificant peat extractions but maintain a significantly sized growing media industry (Austria, Belgium, Italy, the Netherlands, and Spain).

The data collected by PWC together with the data obtained by CO CONCEPT from internet research, the study of literature, personal communications and other



means were compiled by CO CONCEPT and are the basis of a comprehensive study published this year. Only some of the main data and conclusions are reflected in this paper.

## Data collection results

Several hundred companies in the EU produce peat and growing media. Some only extract peat but do not further process it; others are only involved in the manufacture of growing media. A third group would extract and process the peat to growing media, possibly also using imported peat as well.

The survey responses from the 16 EU countries involved were quite good, although there was variation in precision of the submitted data. A few countries were unable to provide certain data. This however has only limited impact on the overall statements of the report and conclusions given.

### Peat production in the EU

Peat production is weather dependent. Therefore, the harvest can vary greatly from one year to another. The 5-year average peat production from 2001-2005 in the surveyed countries totalled 62.737 million m<sup>3</sup> (Fig. 1). The production figures include peat for all areas of use including commercial horticulture and the hobby market, soil improvers (commercial and hobby), peat for energy use and any other uses than horticulture or energy. The largest producer countries are Finland, Ireland and Germany.

### Peat usage in different sectors in the EU in 2005

In the EU peat is mainly used for the production of energy and growing media. Table 1 reflects the usage of peat in the given four sectors. Due to lack of statistical data and even reliable estimations in some countries, not all figures in Table 1 are as precise as hoped for by EPAGMA when distributing the questionnaire. Poland, for instance, has not reported any peat usage at all. This statement is actually invalid, as Poland does use quite a substantial amount of

peat for the production of growing media (Schmielewski, 2008).

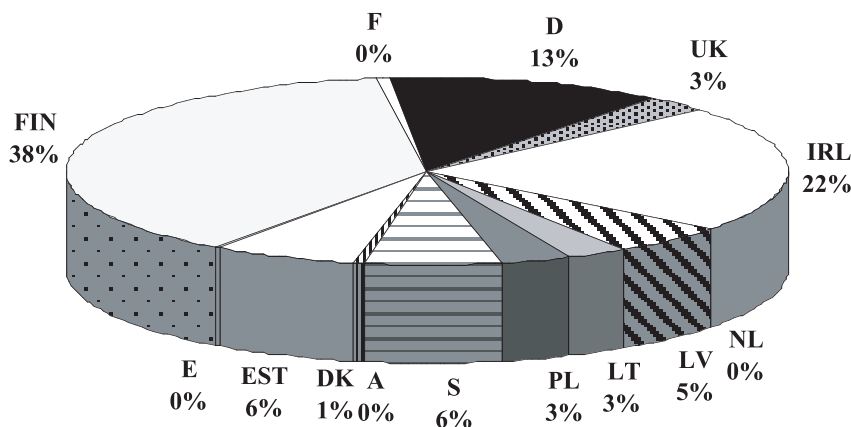
There are four main producer and user countries of energy peat: Estonia, Finland, Ireland and Sweden. Also Lithuania and even the United Kingdom reported production of fuel peat.

Of the total amount of peat (69.368 million m<sup>3</sup>) used in the surveyed countries in 2005 approximately 50.5 % was used as energy peat, 42.2 % for the production of growing media, 4.5 % for soil improvement and 2.8 % in other sectors i.e. the production of activated carbon.

### Peat usage in production of growing media for professional horticulture and the hobby market

37,126,230 m<sup>3</sup> of growing media (including peat and materials other than peat) were produced in the surveyed EU countries in 2005; over 22.1 million m<sup>3</sup> for the professional and more than 14.9 million m<sup>3</sup> for the hobby market. Peat was by far the main growing medium constituent. Of this total material input about ¾ was peat. Peat-free growing media – with the exception of pre-shaped mineral wool slabs developed for certain crops and growing techniques – play an overall subordinate role in growing media production in the EU. Due to its more favourable properties, *Sphagnum* peat is of much greater horticultural significance than fen peat.

Peat usage for production of growing media varied by country. Out of the reported total of 29.3 million m<sup>3</sup> of peat used (domestic and imported sources) as a growing medium constituent (professional and hobby) in so called producer and consumer countries Germany (8.39 million m<sup>3</sup>), the Netherlands (3.95 million m<sup>3</sup>), Italy (3.6 million m<sup>3</sup>), the United Kingdom (2.55 million m<sup>3</sup>) and France (2.54 million m<sup>3</sup>) were the main peat user countries. These countries were followed by Lithuania (1.37 million m<sup>3</sup>), Spain (1.24 million m<sup>3</sup>), Belgium (1.15 million m<sup>3</sup>), Sweden (1.03 million m<sup>3</sup>), Ireland (0.97 million m<sup>3</sup>), Finland (0.94 million m<sup>3</sup>), Latvia (0.87 million m<sup>3</sup>),



**Figure 1.** 5-year average (2001-2005) peat production/harvest in the EU per country as percentages. The average annual amount of 62.737 million m<sup>3</sup> is the volume of peat (based on EN 12580) that was put into stockpiles at production sites in the country and includes peat for horticulture, energy and other usages.



**Table 1.** Peat usage in production of peat-based products in '000's cubic metres by sector in 2005 in the surveyed EU member states.

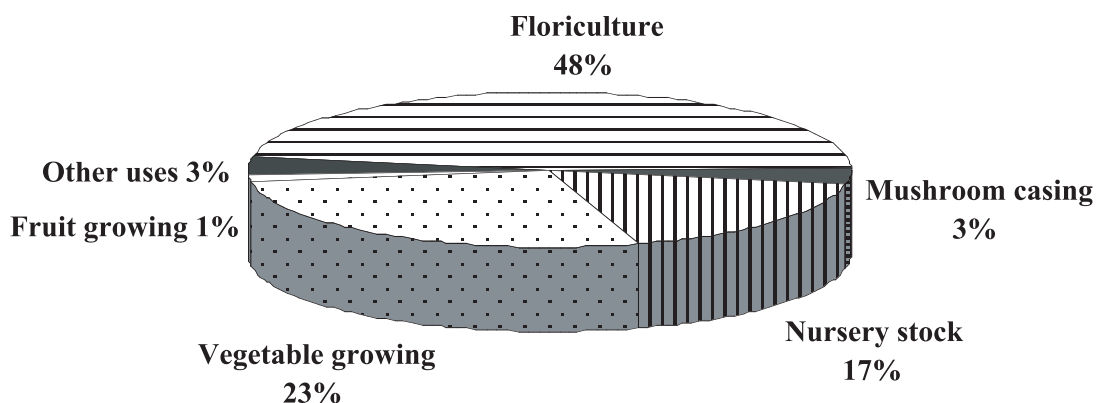
Country	Growing Media (Professional and Hobby)	Soil Improvers (Professional and Hobby)	Energy	Uses other than horticulture and energy	Total
<b>'Producer Countries'</b>					
Denmark	542	0	0	0	542
Estonia	n/a	n/a	1386	n/a	1386
Finland	944	850	21400	750	23944
France	2541	11	0	20	2572
Germany	8390	1270	0	865	10525
Ireland	972	25	10028	0	11025
Latvia	870	0	0	0	870
Lithuania	1366	0	266	0	1632
Poland	n/a	n/a	n/a	n/a	n/a
Sweden	1030	70	1900	270	3270
UK	2548	147	21	3	2719
<b>'Consumer Countries'</b>					
Austria	155	20	0	0	175
Belgium	1153	180	0	0	1333
Italy	3600	300	0	0	3900
Netherlands	3953	280	0	0	4233
Spain	1240	0	0	2	1242
<b>TOTAL</b>	<b>29304</b>	<b>3153</b>	<b>35001</b>	<b>1910</b>	<b>69368</b>

Denmark (0.54 million m<sup>3</sup>) and Austria (0,16 million m<sup>3</sup>).

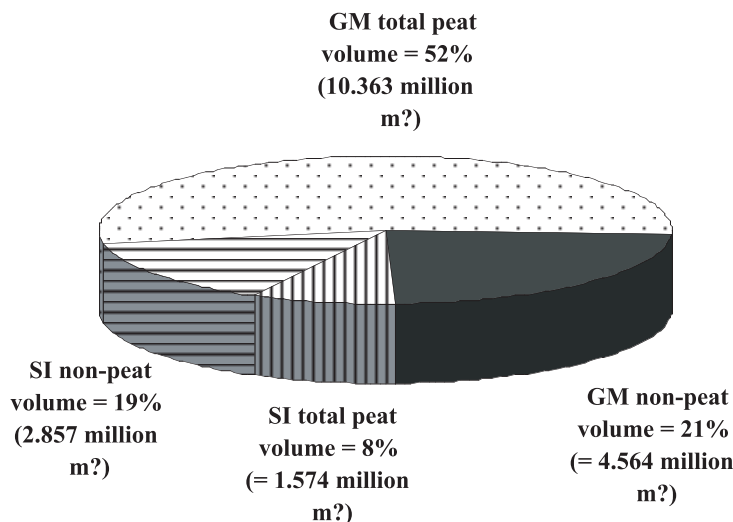
For the year 2005 the surveyed countries reported a total amount of 18.94 million m<sup>3</sup> of peat used for the production of growing media for professional horticulture. Figure 2 shows the amounts of peat used in the different segments of professional horticulture.

Of the reported total of 14.927 million m<sup>3</sup> of growing media manufactured for the hobby market peat represents 69.4 % (or 10.36 million m<sup>3</sup>) of all constituents used, meaning that 30,6 % are constituents other than peat (Fig. 3). Compared with the 14.3 % of materials other than

peat used for the production of professional growing media, this figure is more than twice as high. The reason for this can be seen in the fact that end users do not run the risk of crop failure by applying higher percentages of materials other than peat in a mix when seeding, transplanting and growing on bedding plants, houseplants, etc. Manufacturers of hobby media are more willing to blend other materials into their peat-based media or even produce peat-free media, because the risk of large-scale crop failure does not exist in this market compared to the professional sector.



**Figure 2.** Percentages of the reported total of 18,942,000 m<sup>3</sup> of peat used for manufacturing growing media for different segments of professional horticulture in the EU in 2005.



**Figure 3.** Percentages and volumes of the total reported amount (= 19.358 million m<sup>3</sup>) of materials used in the EU in 2005 for the production of growing media (GM) and soil improvers (SI) for the hobby market.

### Growing media sales

A reported total of 37,126,230 m<sup>3</sup> of growing media were produced in 2005 in the surveyed 16 countries. Of this total 26,588,360 m<sup>3</sup> (71.6 %) were sold on the home market. The mean market value ex works was € 33,46.

A reported amount of 9,189,800 m<sup>3</sup> were EU exports (24.8 %) with an average market value ex works of € 30,77.

Non-EU exports totalled 1,348,070 m<sup>3</sup> (3.6 %) having a mean market value ex works of € 28,79.

Based on the total reported amount of growing media produced and the mean ex works prices for the segments home market, EU exports and non-EU exports a calculated ex works market value for growing media produced in the EU in 2005 was over € 1.262 billion. This figure would exclude Poland and Estonia who did not report relevant data, but also countries not covered by the survey.

Compared with other peat-based product groups growing media have the highest ex works market value of the total which was over € 1.686 billion in 2005. Growing media represented 75 %, soil improvers 12.5 %, energy peat 12 % and other peat-based products 0.5 % of the total ex works market value of all products produced in 2005.

### Employment in the peat and growing media industry

An estimated total of 10,716 full time direct employees were reported. These would be administrative staff, part time employees reported as full time equivalents and that proportion of the personnel who are actively dealing with peat matters.

### Horticulture in the EU

Referring to the use of peat and growing media there are two main sectors of usages: professional horticulture and the hobby market. The amateur gardener uses growing media for sowing, transplanting and potting purposes. The hobby market is also supplied with produce grown by professional growers who cultivate plants for fresh consumption, namely fruits and vegetables, or decorative

purposes, namely trees, shrubs, pot plants and cut flowers. Professional horticulture is divided into three major segments with sub-segments in crop production: edible plants (vegetable growing and fruit growing), ornamental plants (floriculture and nursery management), and landscape horticulture. Growing media are used in all segments but the largest amounts of media are used in floriculture, vegetable growing and nursery stock production (Fig. 2). In general all products are perishable, high value products with a high potential of added value compared to main agricultural crops. The average per capita consumption of flowers and pot plants for Europe in 2004 was € 41.

Europe holds the biggest market share (38 %) of the world production of flowers and plants, although only approx. 9 % of the production area is located in this continent. Its high production value can be explained by a very intensive cultivation under glass. Almost 33 % of the crop area in Europe is protected cultivation (under glass) which is very much dependent on growing media.

Some 62,000 firms in the EU grow ornamental plants (pot plants and cut flowers) on approximately 56,000 ha of land, partly under glass and other protective cover. Production value of ornamental plants (excluding bulbs and tubers) totalled at least 11.8 billion € in 2004 resulting in a consumption value of 23.1 billion €. This segment of horticulture is increasing in terms of size and value.

The number of horticultural firms specialized in growing vegetables (including mushroom growers) in the EU totalled about 398,000 in 2003 for the EU 15. Among these are growers that do not cultivate their own seedlings but are supplied with young plants by other growers specialized in cultivating young plants for field cultivation. The media in which these young vegetables are grown are in most cases peat-based. In 2005 the production area of vegetables in the EU occupied an area of at least 1,938,00 ha.

There are about 17,800 holdings with nursery stock production on at least 108,700 ha in the EU 25. The



smaller part of this area would be used for container-grown trees, shrubs and other plant groups. However, growing media are essential for cultivating in containers and container production is still increasing. The collected data show that the value of nursery crops totals about 4.7 billion €.

## Discussion/Conclusion

Horticulture is highly dependent on intensive crop production. High yields in floriculture, vegetable growing and nursery stock production are particularly dependent on the ability to influence the growth environment with artificial lighting, fertigation and the growing medium. In many cases peat is the main constituent of growing media. Consequences of using less favourable constituents bear an increasing production risk and the risk of inferior product quality. Strict contracts for production and delivery, with detailed attention to quality control, are common.

The use of peat and growing media is strongly linked to horticulture. Horticultural segments rely on growing media and peat to different degrees. Propagation of vegetables and ornamental crops is very dependent on peat-based media. Co-use of materials other than peat to a limited proportion is possible with some plant species. Few crops need to grow in peat-reduced media. Peat-free media play an inferior role in crop production and even in the hobby market their use is limited.

There are no data on employment available for the EU 25 or EU 27. Extrapolating from data from Germany CO CONCEPT estimated that ornamental horticulture provides at least 173,718 full-time jobs in the EU 27. The workforce in vegetable production is estimated to be over 600,780 fte. Compared with the workforce in the peat and growing media industry (ca. 10,700) these figures alone (data on nursery holdings was not available) are outstanding and underpin the DIW (1999) statement that the economic significance of raw materials – for this matter peat – does not primarily result from data on their extraction, mining or processing, but from their usage. Today's sophisticated techniques of growing crops modern horticulture in the EU would not be sustainable without peat-based growing media.

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