

The Finnish roadmap for bedding and growing media production to 2040

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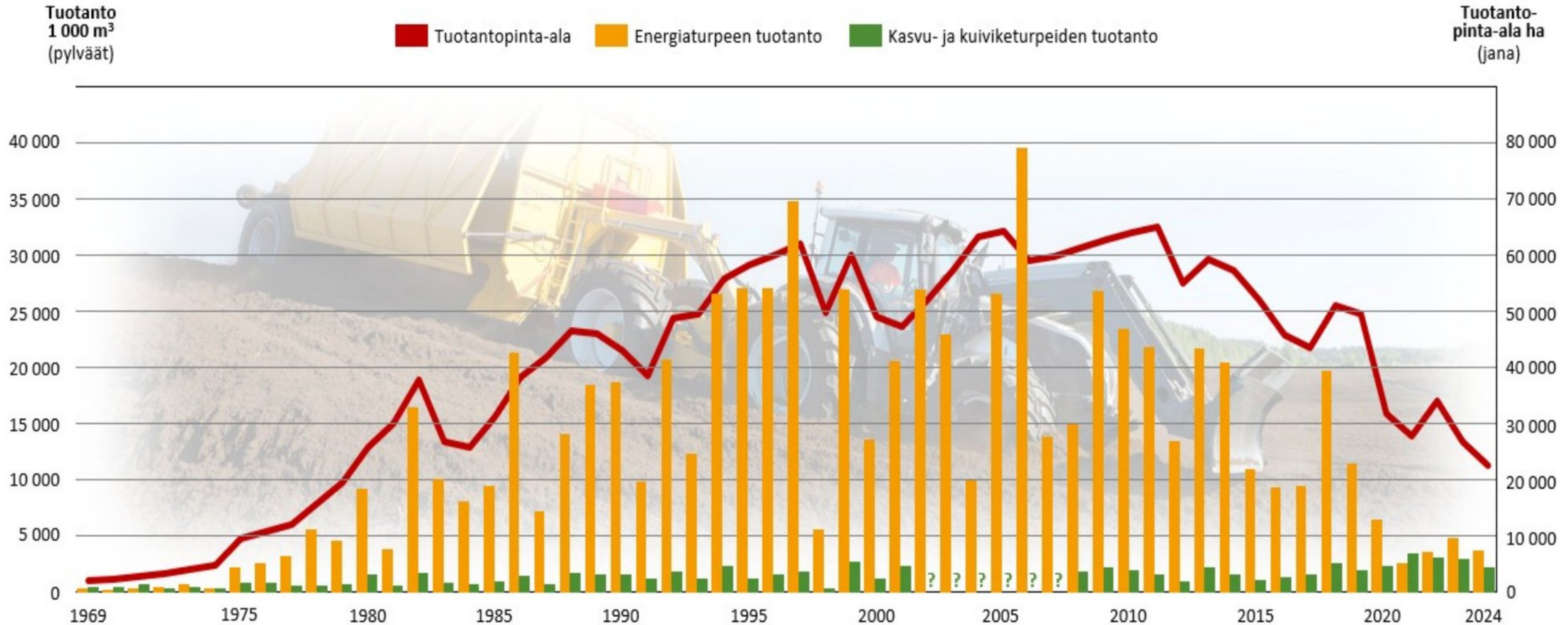
Maa- ja metsätalousministeriö



What is this roadmap?

- The roadmap for bedding and growing media production is a study **commissioned by the Finnish Ministry of Agriculture and Forestry and carried out by the Natural Resources Institute Finland**
- The aim was to establish the current situation and the measures needed to **ensure production and availability of domestic bedding and growing media materials now and in the future to 2040**
- The roadmap proposes guidelines for **allocating national R&D and investment funding**

Background: production of energy peat is dying down rapidly from 2010; years 1969-2024 in the figure



Lähteet: Turveteollisuusliiton vuosikertomukset, Turveteollisuus-lehdet, Suo ja Turve -lehdet, 2005 alkaen Turveteollisuusliiton ja Bioenergia ry:n jäsenkyselyihin perustuvat tuotantotilastot, ympäristö- ja pelastusviranomaisten keräämät tiedot alle 10 hehtaarin alueiden tuotantopinta-alasta.

Why energy peat is so important: *bedding and growing peat has traditionally been produced as part of energy peat production in Finland*

- The **rapid phase-down of energy peat production** that began in the 2010s has started to **restrict the availability also of bedding and growing peat** and to reduce their quality
- **However, in same time, bedding and growing media peat is still the key material in Finland** because of its special, indispensable properties for animal, greenhouse and seedling production and also because of **stable availability and competitive price.**

From background to implementation of the roadmap work

The roadmap work was carried out mainly by consulting stakeholders (stakeholders were strongly involved) in the sector and also by using literature:

- **producers** of bedding and growing media
- **end users** of bedding and growing media
- **authorities and experts**, such as researchers from different fields
- environmental experts



representatives of industry and trade

Results of the stakeholder surveys

The surveys reached different stakeholder groups very well : 1052 answers in total

Sector	Respondents, n
Bedding material producers	38
Growing media producers	11
Other actors (authorities, experts)	83
End users of bedding materials	835
End users of growing media	85

Stakeholder's opinions in a hard nutshell: *bedding and growing peat is very difficult to replace with other materials* in Finland on a large scale, and at least in the short term

Importance of peat:

almost 90% (85-87 %)

of end users of bedding and growing media used **bedding or growing peat** in their main production line and considered peat **very important and not practically dispensable** in their sector. However, **other groups** (authorities, experts etc.) regarded peat as **not even closely so important**.

***Main barriers* to increasing the range and volumes of new bedding and growing media products according to stakeholders**

- **The main barriers** to diversifying the supply of bedding and growing materials were seen as **the properties of alternative materials** and their unsuitability for the intended use, quality, customer scepticism, material storability, **poor availability, too rapid change** and **high price**.
- **Safety of new, substitutive materials (especially for bedding materials)** was a concern, as many raw materials were perceived to contain impurities.
- **Technical compatibility with current cultivation technology** and operating practices was seen as a special challenge in **greenhouse cultivation**.

Most promising new materials to complement peat

For growing media purposes

- **Sphagnum moss (can be used also in a pure material)**
 - **Best raw material** for peat-free and low-peat growing media
 - Good water retention, capillarity and hygiene, **but high price**
- **Wood fibre (mostly as a mixture component)**
 - **Inexpensive and easily available**
- **Composts and biochar (in mixtures)**
 - Potential especially in landscaping and hobby use
- **However: many limiting factors:**
 - Full peat-free replacement is not possible in professional cultivation in the near future
- **Peat-free materials are usually much more expensive compared to peat (excluding wood-based materials)**

For bedding material purposes

- **Sphagnum moss** - the only alternative comparable to peat for **broilers**
- **Wood-based materials** (shavings, sawdust, pellets) for horses and cattle
- **Reed canary grass** for cattle and horses
- **Common reed and straw pellets** as complementary alternatives
- **However, many limiting factors:**
 - Replacing peat remains very challenging especially in broiler production
 - **Poor availability** of raw materials and **price increases** are key risks

Conclusions of complementary materials

01

Sphagnum moss could, based on its properties, be clearly the most strategically important domestic peat substitute

02

Wood-based side streams and stem biomasses offer large potential and low price as complementary solutions

03

The real bottleneck is usually not biological potential, but the development of production, logistics and price formation

Roadmap: proposed vision for 2040 and measures needed

Realizing the vision requires R&D&I actions



Raw material availability and scalability



Product development, piloting, and research platforms



Material and mixture quality and health effects

Vision

By 2040, bedding and growing media production is based on diverse, sustainably produced domestic raw materials. Alongside peat, there is a wide range of different material types, such as straw-based materials, sphagnum moss, and various by-products from agriculture and forestry.

Advanced value chains ensure the good functionality of materials, economic profitability, and overall ecological sustainability. They also help secure food production supply security and enable competitive exports to growing international markets.



Economic profitability and markets



Environmental and climate impacts



Regulation, permitting, and policy instruments



Proposed guidelines for national measures derived from the vision in practice:

1. To ensure **domestic** bedding and growing media raw materials (including peat) **sufficient availability and reasonable price**.
2. To ensure the **implementation** of promising new bedding and growing media materials **via investments**.
3. To ensure that bedding and growing **peat will be produced enough** also in the future, i.e. at least **3 million cubic metres** annually in Finland) also in the future by **updating and moderating the permitting of bedding and growing peat production**. This means practically need of at least **5000-8000** ha new active production area by 2040.

Funding proposals for investments from stakeholders: very practical needs in the near future

Investment Proposals



INVESTMENT PROPOSAL 1

Regional terminals for bedding and growing media materials

Covered industrial areas needed for storing and handling materials



INVESTMENT PROPOSAL 2

Developing machine chains for new and existing raw materials

Development of harvesting and processing technology for bedding and growing media materials



INVESTMENT PROPOSAL 3

End-user equipment investments

Machinery and systems needed by end users to transition to new materials



INVESTMENT PROPOSAL 4

Software development: Mixture optimization software

A tool for optimizing material mixtures and logistics

**Thank you for
your interest!**

