

# CERTIFICATION OF PRODUCTS FROM PALUDICULTURE



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The aim of the study was to develop a proposal for a certificate for biomass from paludiculture. The label should be applicable to a wide range of products from paludiculture, e.g. food (buffalo meat), medicinal products, energy raw materials and building materials. To this end, a standard had to be developed that defines the minimum ecosystem services that must be provided on a rewetted peatland area in order for the label to be awarded to biomass from a paludiculture site. The proposed paludiculture standard is underpinned by specific criteria, compliance with which must be demonstrated by means of indicators in order to be awarded the Paludi seal. It's assumed that certified paludi-products will shortly be competitive with products made from fossil raw materials.

## Background

Biomass produced in paludiculture can have wide-range applications. The advantage paludi-biomass holds, is that its production and utilization can contribute to climate change mitigation in several ways, namely by:

- reducing greenhouse gas emissions from peatlands upon rewetting of the paludiculture site,
- the replacement of fossil raw materials with renewable raw materials, and
- a long-term carbon storage, e.g. in building materials or plant charcoal.

In addition, many other ecosystem services can be provided by means of paludiculture.

## Definition of Paludiculture

The basis for further action is a clear definition of what paludiculture is:

- Paludiculture is the agricultural or silvicultural use of wet and rewetted peatlands as an environmentally friendly alternative to drainage based utilisation. Rewetting and paludiculture lead to reduction of remarkable emissions of greenhouse gases and nutrient emissions and stops further peat degradation,
- The peat is conserved or even newly formed, whereas spontaneously grown or cultivated biomass is used.
- As well local climate cooling and habitat provision for rare species can be achieved,
- Paludiculture implies an agricultural paradigm shift. Instead of draining them, peatlands are used under peat-conserving permanent wet conditions.

For more information see: Wichtmann, W., Schröder, C., and Joosten, H. (2016).

## Products from Paludiculture

Different plant species can produce biomass in paludiculture (Fig. 1). Processing biomass from wet peatlands in new utilization paths contributes to decarbonisation of the economy and therefore holds new income potential for farmers and land user.



Figure 1, above: Plant species suitable for paludiculture, from left: sedges, common reed, cattail, peat mosses, reed canary grass, black alder. Below: Products which can be labeled with a paludiculture certificate. Top, energetic use: round bales, pellets and barbecue coal; bottom, material use: thatch, insulation and construction plates, molded parts.

## Economy of Paludiculture

Different options are possible to overcome the current gap between production costs and product revenues, like area based state programmes and funding, as well as premium marketing of certified paludi-products.

## Certification of Paludi-Products

Biomass from wet peatlands provides raw material which can supply an existing demand, however, sales market across some sectors necessitate development. Ecosystem services provided by wet peatland management are not rewarded. Due to difficult conditions in management, compared to drainage - based peatland utilization, costs may be higher and not covered by revenues. In the long term, products based on fossil raw materials will be forced out of the market. Some first project-based approaches to rewarding ecosystem services are currently under development. Costs and additional incentives can be covered by additional payments for ecosystem services, even if revenues from biomass are rather low. Another option is some top up price for products due to a certificate.

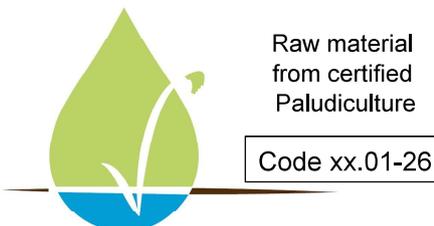


Figure 2: Proposal for a label for the certification of products based on biomass from paludiculture. This ensures that they have additional value, as they are produced in wet peatlands, providing significantly verified ecosystem services compared to drainage-based use.

In view of the increasing environmental awareness of consumers, there is a strong incentive for producers to integrate environmental friendliness as part of the product characteristics and to communicate this by means of familiar or trusted labels. By guaranteeing that the product meets higher standards with a label, it is assumed, that higher production costs can be absorbed.

## Advantages of certification

Labelled or certified products will enjoy a competitive advantage, which should lead to a voluntary reduction or avoidance of the products' negative environmental impacts in order to be allowed to use the label.

This leads to the internalisation of the external costs of the products caused by negative environmental impacts. In accordance to varying degrees of requirements regarding proof that biomass or raw materials are produced within paludiculture and that the principles of the paludiculture standard are adhered to. Certificates can be awarded in different grades.



Figure 3: Common Reed dominated site in Peene river valley which meets the requirements of Paludi-Standard. Biomass from this site can be certified.

Products produced on the basis of raw materials from paludiculture can be labelled accordingly. The logo developed at the University of Greifswald is proposed as the label to be used (Fig.2).

## Proposal for a Paludi-Standard

Certain conditions must be met for the rewetted peatland area in which paludiculture is practised and raw materials are produced. Compliance with these conditions must be verified and checked by means of an inspection (monitoring). These paludiculture principles (Wichtmann & Beckmann 2024) refer to the definition for paludiculture formulated above and can be summarised under the following points (a - c). Compliance with them, at least on more than 2/3 of the rewetted area which is considered is a prerequisite for the certification of raw materials from paludiculture and awarding a paludi-seal (Fig. 2, Fig. 3):

- a. Environmental and climate relief
- b. Securing ecosystem services
- c. Legal and economic principles

These conditions are set out in detail and supported by criteria that can be verified using corresponding indicators. These indicators can be used to 'measure' the criteria, i.e. to confirm or refute compliance with them. Some criteria require an assessment of the conditions of the peatland area (e.g. the hydrological conditions) in the field (principles a and b). Other criteria can be checked by reviewing documents at a desk (the legal and economic conditions summarised under principle c). As part of audits conducted by independent institutions, indicators are measured both in the field and at the desk using indicators and compliance with the criteria is checked.

It is assumed that higher prices for certified products will soon become the norm and that certified raw materials from paludiculture will be competitive with products made from fossil raw materials.

## Further reading

- Wichtmann, W., Schröder, C. & Joosten, H. (2016): Paludiculture – productive use of wet peatlands. Climate protection, biodiversity, regional economic benefits, Schweizerbart Science Publishers, 272p
- Wichtmann, W. & Beckmann, V. (2024): Certification of paludiculture. In German: Zertifizierung von Paludi-Kultur. Berichte über Landwirtschaft. 33 p. <https://www.buel.bmel.de/index.php/buel/article/view/517/754>

