

# CERTIFICATION OF PRODUCTS FROM PALUDICULTURE



Wendelin Wichtmann and Anke Nordt  
Greifswald University, partner in the Greifswald Mire Centre, Greifswald, Germany

## Background

In Paludiculture produced biomass can have wide-range applications. The advantage paludibiomass 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.

## Economy of paludiculture

Biomass from wet peatlands provides raw material which can supply an existing demand, however, sales market across some sectors necessitate development.

Due to difficult conditions in management, compared to drainage - based peatland utilization, costs are often higher and are not covered by revenues. Yet, ecosystem services provided by wet peatland management are not rewarded. Fig. 1 shows a situation, where costs for paludibiomass production are not covered by revenues.

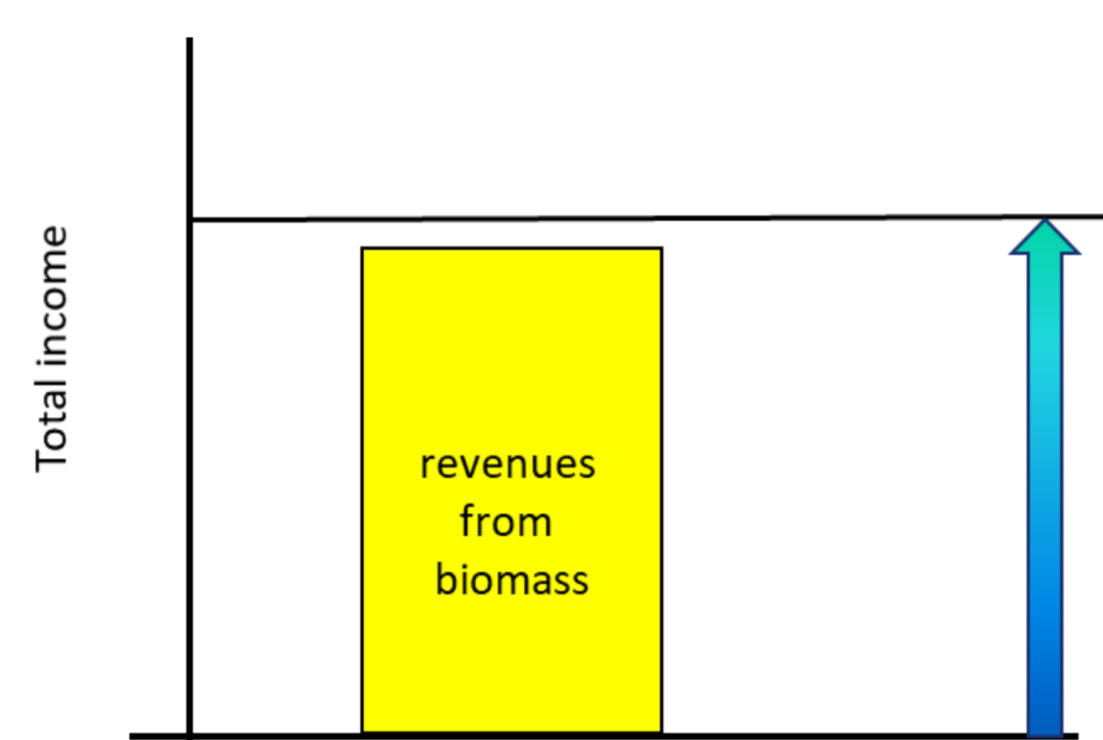


Figure 1: costs are not covered by revenues from paludiculture.

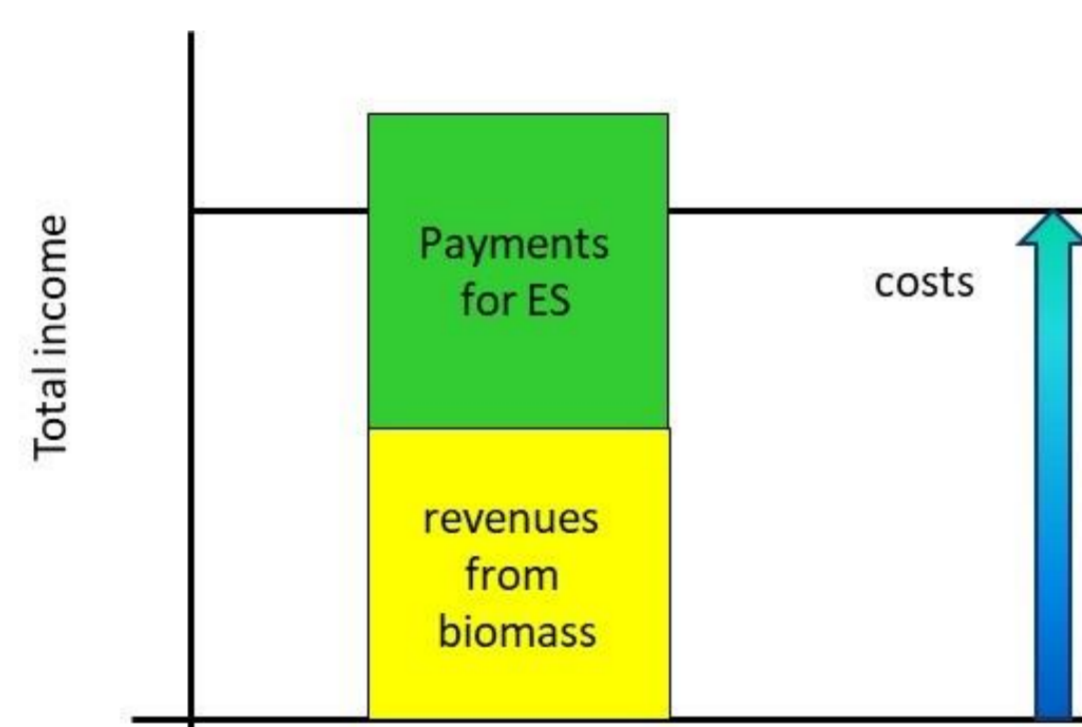


Figure 2: costs are covered by combining revenues and premium.

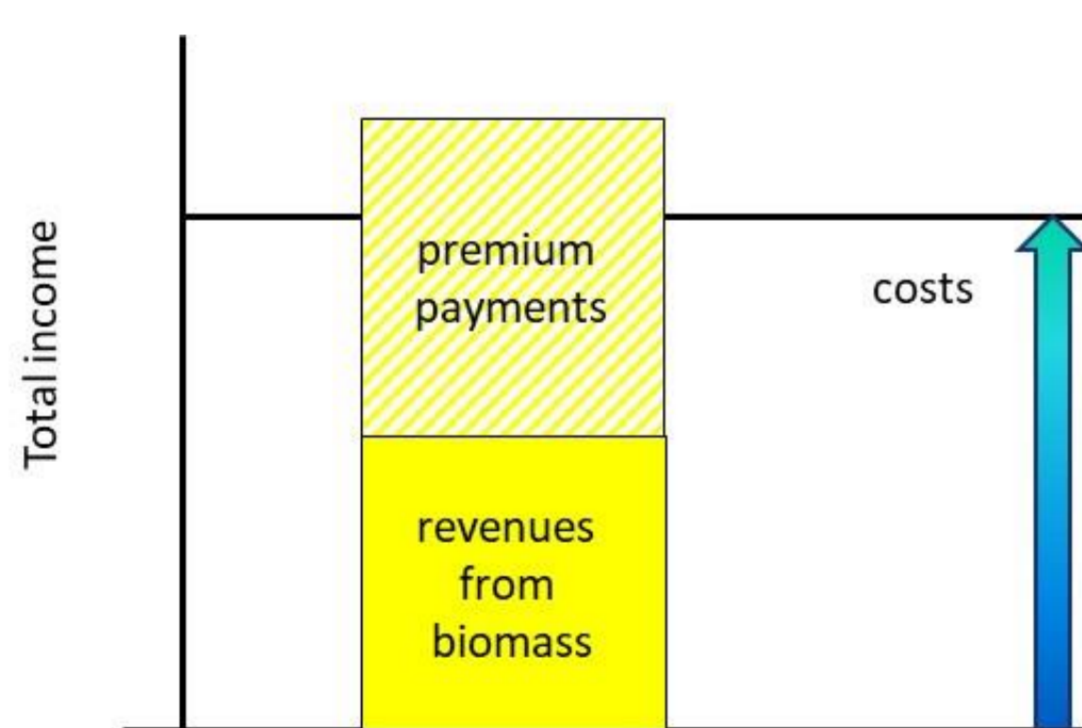


Figure 3: costs are covered by premium payments due to a label.

Such a practice can possibly be maintained for a few years, e.g. through farm-internal cross-subsidization. Fig. 2 shows that costs and an additional incentive can be covered by additional payments for ecosystem services, even if revenues from biomass are rather low. Another option are some top up prices for products due to a label (Fig. 3).

## Products from paludiculture

Different plant species can produce biomass in paludiculture (Fig. 4). Whether used as packaging material, molded parts, insulating materials, peat substitutes, ingeneration of heat or electricity, or production of meat through feeding buffaloes - climate protection is achieved across every product sector. Raising the water table near soil surface is one of the requirements for paludiculture, that helps in reducing high GHG emissions from drained peatlands. Paludiculture is thus also carbon farming.

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 4: Plant species suitable for paludiculture, from left: sedges, common reed, cattail, peat mosses, reed canary grass, black alder.

## Certification of Paludi-Products

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 paludi-products. 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 (set) standards with a label, it is assumed, that higher production costs can be absorbed (Fig. 6).



Figure 5: water buffaloes grazing in a rewetted fen-peatland in Northeastern Germany.

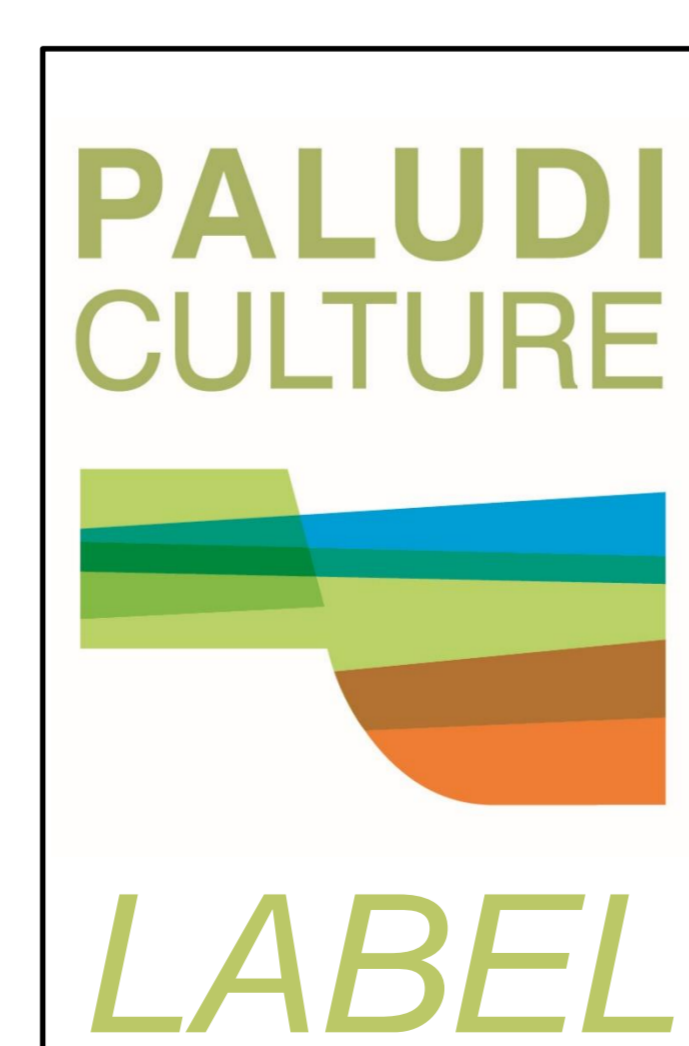


Figure 6: Certification of products from paludiculture ensures that these have additional value, as they are produced in wet peatlands, connected with significantly reduced GHG emissions compared to drainage-based use.

## Advantages of certification

If a competitive advantage arises for labeled or certified products, this can lead to negative environmental impacts of the products being reduced or avoided on a voluntary basis. This leads to the internalization of the external costs of the products caused by negative environmental impacts.

Furthermore, it needs to be determined to what extent a separate label for paludiculture products is required. Product labeling that includes climate-friendly paludiculture products and the integration of paludiculture criteria into existing certification systems would be possible alternative steps towards a marketing-based incentive to stimulate demand for paludiculture products.

We will test the development of a paludiculture certificate using the production of water buffalo meat as an example. Other paludiculture products are also interesting for such a certificate (Fig. 7).



Figure 7: 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.

## Example: Buffalo husbandry

Keeping buffaloes is the only sustainable animal-based method of managing wet peatlands in temperate Europe (Fig. 5). They are particularly suitable for managing coastal floodplain peatlands and re-wetted degraded fens that have some carrying capacity. Products they provide are: meat, milk, breeding animals and open landscapes. Costs for meat production are not covered by revenues from products.

Using water buffalo products as an example, a certification process could include:

- Development of a certification system for paludiculture products,
- Determination of ecosystem services of grazing wet peatlands with water buffaloes,
- Classification of greenhouse gas emission site types (GEST),
- Evaluation of ecosystem services in the case of grazing of wet peatlands by buffaloes,
- Assessment of transferability of the certification to other paludiculture systems
- Development of the basics and testing on examples,
- Economic and ecological assessment of keeping water buffaloes.

Together with Rostock University, Greifswald University will develop a certification model for a label "from paludiculture" for the utilization of plant growth on rewetted peatlands by water buffaloes (2021-2024).