

From linear to circular: AN INNOVATION STRATEGY FOR MISCANTHUS BASED SUSTAINABLE PACKAGING

Design Artefacts

The four design artefacts represent four different strategic directions that can be taken for packaging made from Miscanthus. For each of the artefacts is determined what the environmental impact is, an implementation plan and a costs analysis.

Coffee Cup



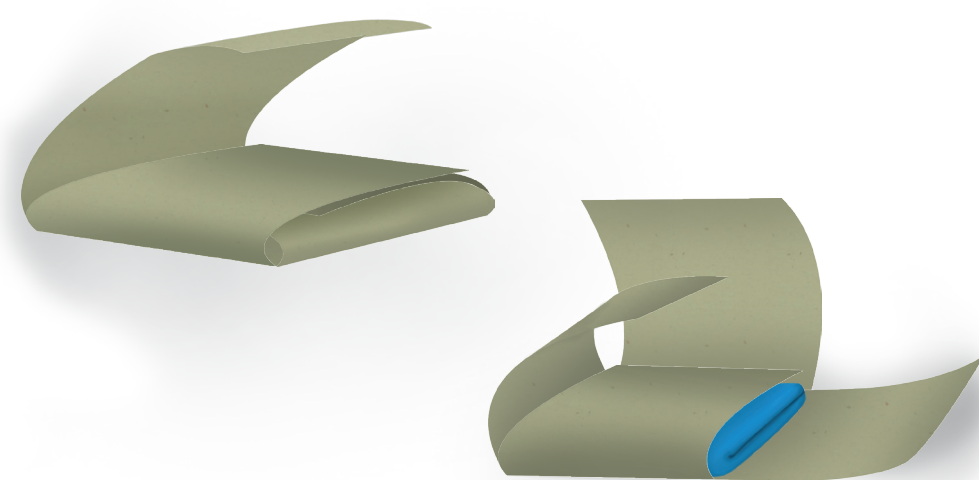
The first design artefact is the coffee cup. This is made from Miscanthus based paper using chemical pulping and sheet rolling as production method. The environmental impact is higher compared to the other design artefacts because of the pulping method.

Sandwich box



The second design artefact is the sandwich box. This artefact is made with mechanical pulping and 3D moulding of paper pulp. The environmental impact is lower because mechanical pulping can be done locally. This artefacts needs a coating to be food safe.

Blanket wrapper



The third artefact is the blanket wrapper. This artefact is a paper sheet used for KLM to wrap their blankets in. This artefact cannot be made with the current cultivated Miscanthus and can only be made when more Miscanthus is planted.

Beauty case



The last artefact is the beauty case for KLM business class passengers. A lot of the current beauty cases are incinerated while a beauty case of Miscanthus can be recycled well via conventional paper recycling methods. The beauty case can be produced and implemented as a first Miscanthus based packaging.

This master thesis present a circular innovation strategy for Miscanthus based packaging. Miscanthus is an annual crop that grows 3,5m high each year and can be used to create paper packaging. Four different design artefacts showcase the possibilities of Miscanthus packaging and form together with a roadmap and an implementation plan a strategy for Miscanthus based packaging for KLM.



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