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udk design and social context

WiSe 2021/2022

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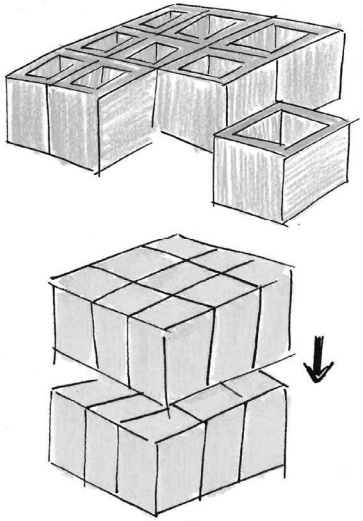
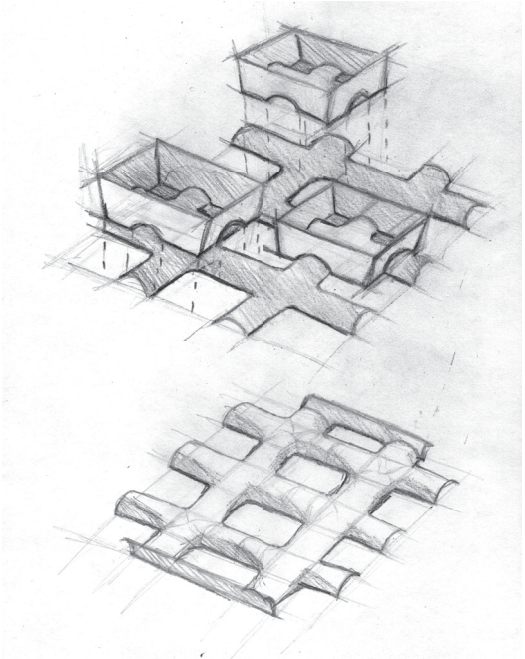
a packaging system for soft fruit

Even though plastic recycling systems exist, around half of the material still ends up in waste incineration. Some EU members for instance, recycle less than 30 percent of their plastic packaging waste.

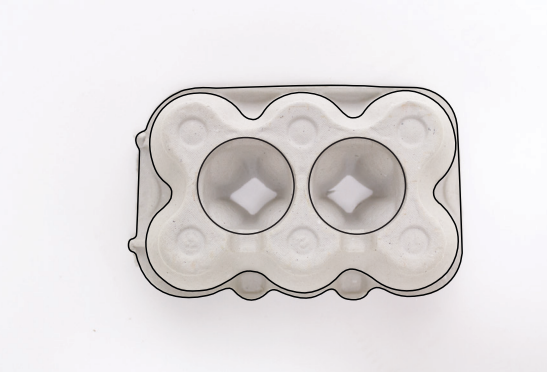
Other materials like cardboard, are also widely implemented in the packaging world, such as in transport boxes for food. We noticed that supermarkets throw away many of these boxes that are used only once, and thought it was an opportunity to design a packaging using this cardboard waste.

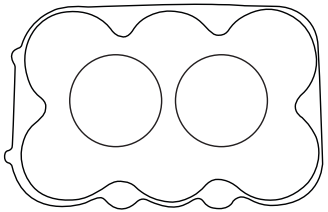




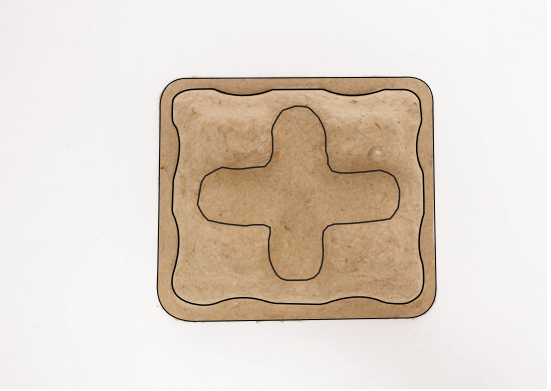
We wanted to reduce the dependence on plastic as a material for packaging, thus we decided to use paper pulp, which like plastic, is easily moldable. It was also important that we used the material as efficiently as possible, by using a geometry that generated rigidness.

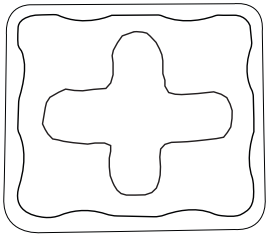
Our idea was to re-design the cardboard box used to transport berries, by reducing it to a grid-template, where each individual tray can fit and be transported.





The egg carton offered examples of how the material is strengthened through geometry.





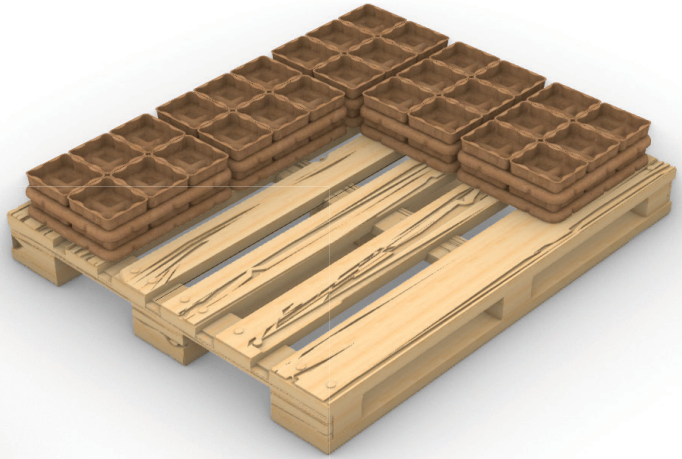
- dents in the walls and floor
- rounded corners / edges
- small rim

12 x 14 x 5 cm

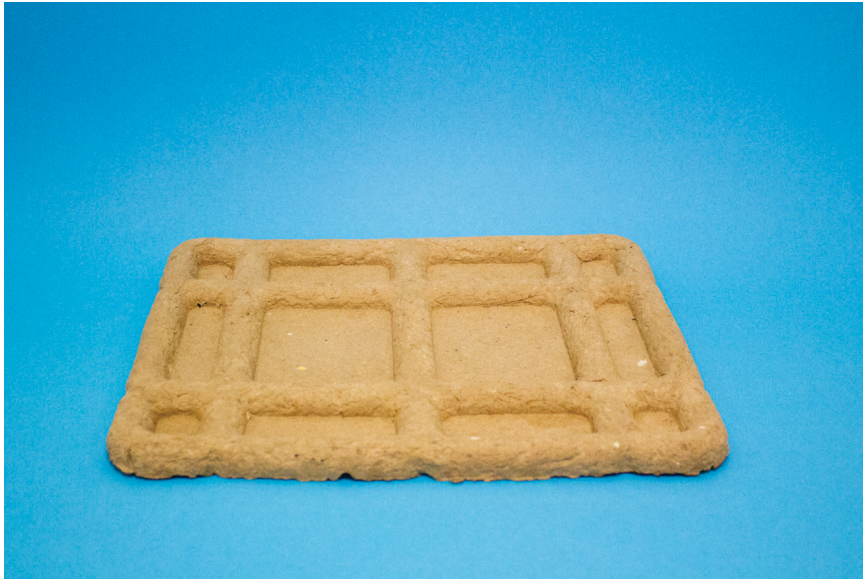
berry tray

39 x 30 x 1.7 cm

grid template



standard dimensions of a pallet
120 x 80 cm
grid template fits in it nine times

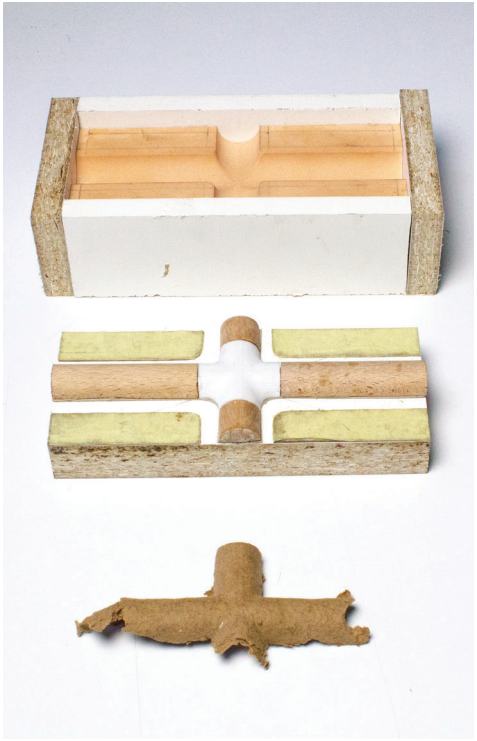


- compressed fibres makes it strong
- effective cushioning against shocks
- easy to mold
- low cost
- water-absorbent
- recyclable / compostable

material samples using 3 different types of binders

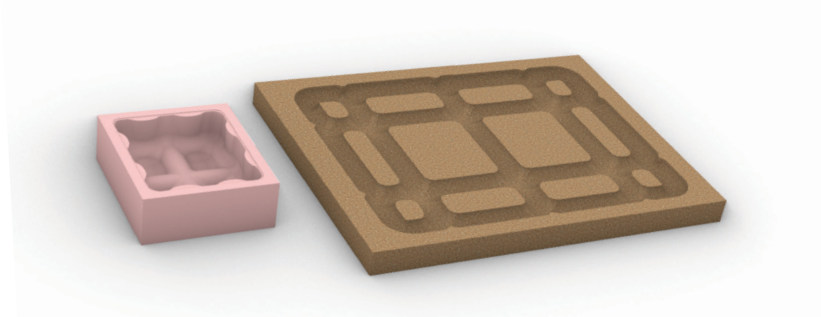
glue (top left - cardboard)
rice paste (top right - newspaper)
cornstarch (bottom left - cardboard)

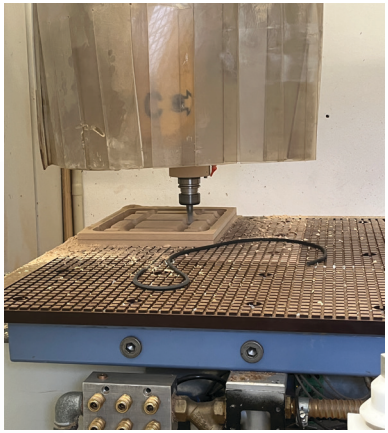
samples testing the forms of the design

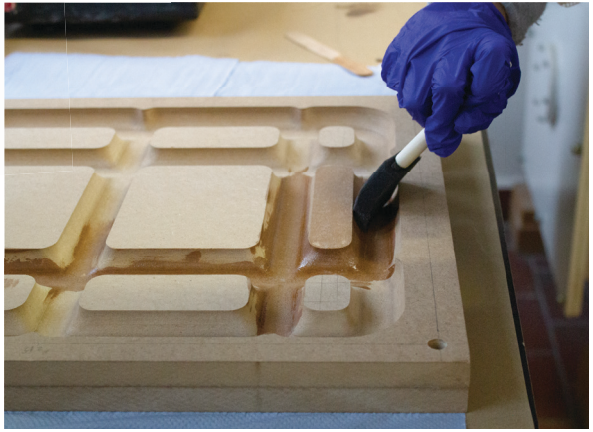


cross-form in the grid template

2 part mold of the tray





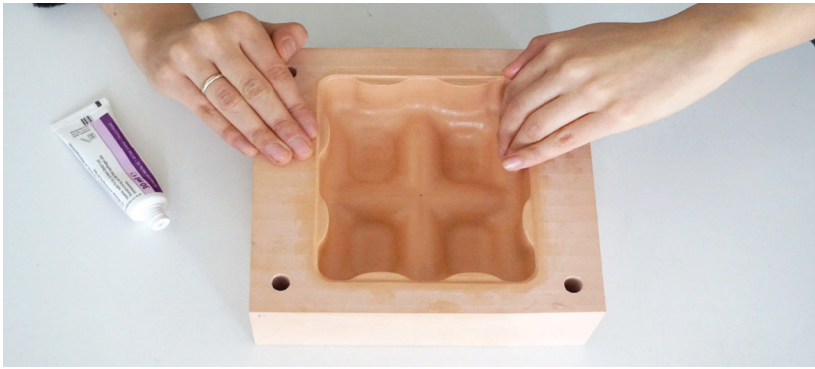


The molds were fabricated by a CNC cutting machine, using a dense foam for one of the forms and mdf sheets for the other - which had to be later sealed with an epoxy.

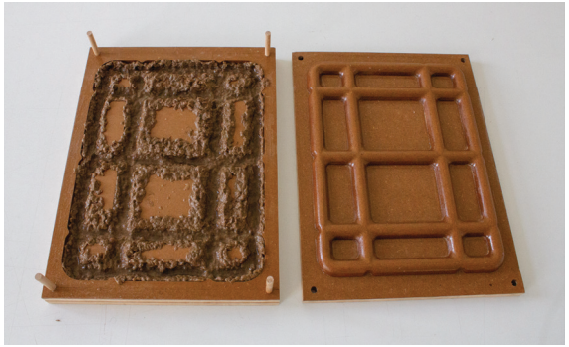
For this process we use a mixture of recycled cardboard and water. In the preparation of the mixture we add salt, to prevent mould formation.

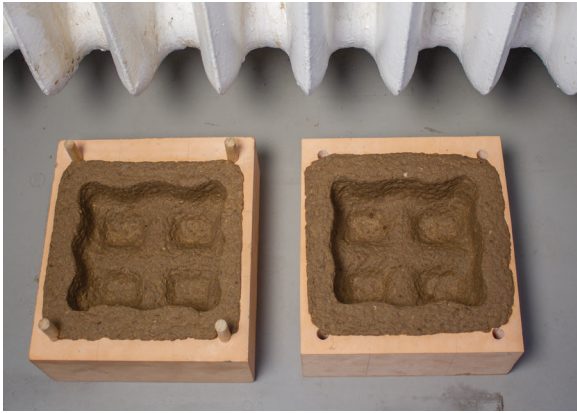
For the application of the mixture, vaseline was used as a means to prevent the mixture from sticking to the mold and to make it easier to remove it from the form.

During the application process, the mixture was pressed into the mold with the help of the positive form and our fingers, in order to achieve smoother outer walls without lumps.



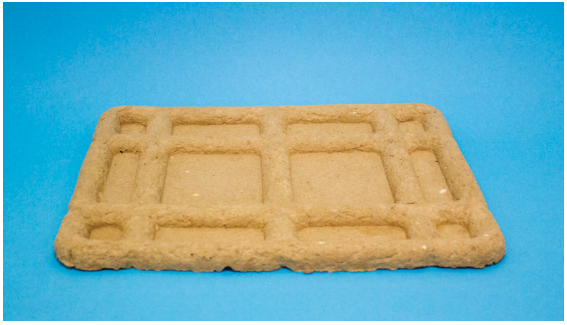
For the production of both elements, we designed two moulds (one negative and one positive) to resemble the industrial pulp molding process.





The grid-template allows each tray to fit by means of the crosses (located both as a positive form on the grid and as a negative in the tray), which fixes the form. The grid-template covers the berries below when transported, so that adding a lid each tray is not necessary.

weight of a cardboard box
(fits 6 individual trays)
193 g
dimensions
40 x 30 x 8 cm



weight of a plastic tray
(fits 200 g of blueberries)
9 g
dimensions
14 x 12 x 4 cm

weight of bayas template
(fits 6 individual trays)
70 g
dimensions
39 x 30 x 1.7 cm

weight of bayas tray
(fits 225 g of blueberries)
15 g
dimensions
12 x 14 x 4.5 cm

It was important to use a geometry that created rigidness to protect the berries during transport. This was achieved by adding dents to the walls and floor and a small rim in the borders.