Public summary bachelor thesis

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Title: Sustainable packaging for Artificial Christmas trees

Topic: Analyzing and redesigning the packaging of artificial christmastrees from an economical and sustainable point of view.

Public Summary

The company Kaemingk is by origin a wholesale company of a wide range of articles. For a few decades, their main focus has been seasonal decorations. Its mission is to offer to its clients a wide and innovative range of home accessories, which is achieved by investigating and investing in upcoming trends. They are a large company with clients and establishments all over the world (Kaemingk, n.d.).

Christmas trees are a large component of Kaemingk's collection. The trees are currently produced in China, after which they are shipped to either the warehouse of Kaemingk or directly to the client. However, due to a container shortage, the prices of shipping containers have increased drastically over the past few years; where Kaemingk used to pay approximately €2.000 for a 40 ft container, they now pay $10.000 (+/- €8.800). Additionally, sustainability has become a topic that Kaemingk can no longer ignore, certainly with increasingly strict regulations regarding packaging for a more circular economy.

From this, it can be concluded that it is of great importance that the current packaging of the Christmas trees is reviewed on its efficiency and sustainability and to reduce its environmental and economical footprint. Since the boxes filled with the Christmas trees are quite large, especially compared to the other products Kaemingk has in its collection, they hope a larger profit can be achieved here.

The main research question of this research can be formulated as follows;

What can be done to improve the packaging of Kaemingks Christmas trees, to increase its sustainability and decrease transport costs?

To achieve this, the current packaging and the packing and storing method were analyzed and reviewed, after which a list of wishes and requirements was composed. Finally, a proposal for changes to the current packaging design was be done and a new packaging was designed.

Based on the research that was done, the following can be concluded; the biggest gain for Kaemingk in transport efficiency and costs can be achieved by optimizing the dimensions of the existing packaging for transport, since the current packaging is not efficiently designed for this. Adapting packaging that is larger than necessary to encase the tree to preferably collo-modular (ten Klooster et al., 2020), and if that is not possible standardized, dimensions will allow for more efficient transport and storage in the department store, which will result in decreased transport costs and lower unnecessary emissions. Furthermore, the packaging that is exactly 120 cm in length according to product information management system (PIM) of Kaemingk should be strictly checked. If this data is not correct, this will have major impact on the efficiency of transport, thus the importance of the packaging being no longer than 120 cm should be addressed to the supplier. The use of a specific pallet type can also

make a large difference in volume loss in transport. Therefore, it should always be checked what pallet is most efficient for the item that is being packed.

Sustainable packaging can be split up into four different aspects: effective, efficient, cyclic, and safe (Lewis et al., n.d.). It is especially important to find the balance between excess product waste and excess packaging and limit the number of different materials uses for better recovery and recycling of materials. Therefore, an additional adjustment to the current packaging is the replacement of the plastic handle with punched handles in the boxes. Removing the plastic handle saves material and reduces the number of different materials, which is beneficial for the recycling process of the packaging at the end of its lifecycle. The punched handles should be placed following the given guidelines so that the boxes can be lifted ergonomically by one or two people, to prevent injuries to the consumer.

The folding pattern itself of the current packaging is very efficient when it comes to use of material, so there is no large value in changing this unless a new folding pattern comes with extra functionality. A proposal for the longer term is to change the current packaging to an expandable packaging design, so that consumers can use it for storage of the tree outside the Christmas season. This extends the lifecycle of the Christmas tree compared to storage in a packaging that is too small or no packaging. Implementing this design will however require some larger changes to the packaging process, such as changes to the die cut system and a more complex packing line.

References

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