

PACKAGING AS A FOOD WASTE WARRIOR

How to find the right trade-off between the environmental impact and barrier properties of food packaging

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How many times have you heard bad comments about plastic packaging? Have you ever thought that plastic packaging could help to fight food waste? Packaging is always criticized for its bad aspects related to pollution and littering but it is never considered as an ally against food waste. Indeed, choosing the right material and creating the best packaging solution can be the right strategy to reduce the environmental impact related to food and packaging waste.

The objective of this project is to find the right balance between the use of plastic material for different packaging solutions to achieve the best barrier properties and the environmental impact that the plastic has. Improving barrier properties makes it possible to increase shelf-life but this must be done applying new packaging solutions, rather than augmenting the quantity of material used.

Thanks to the collaboration with Orkla Foods, an heterogeneous sample of 23 plastic packaged products has been analysed leading a simplified LCA, which, unfortunately, has only considered the environmental impact of packaging production. In addition, to be as clear as possible, it has been important to classify the products and compare them in graphs evaluating few characteristics at a time.

With the approach presented in this thesis, it is possible to do a first evaluation regarding the benefits of certain packaging solutions. The comparison between the barrier properties and the environmental impact of the packaging materials reveals to be a valid method to estimate the quality of the packaging solution.

In the results it is clear how the type and the requirements of the food are really important for the selection of the packaging. In fact, it is

necessary to consider different packaging solutions depending on the storage temperature, on the shelf-life length and on the package dimension. For some products, for example, a short shelf-life could be preferable if that means reducing the packaging environmental impact.

As the European Union and the rest of the world are moving towards a more sustainable future, suggestions and directives are also being made in the packaging field, leading to evaluation of the environmental impact of food packaging by plastic suppliers. Moreover, it will need to be done for the entire supply chain, from the production of the package until its End-of-Life. Oh, and considering also the impacts that the packaged food and the food waste have!

This work has been considered useful by the company to evaluate some of the products of their portfolio and to understand which of them need to be changed. For this reason, the methodology applied for this project is supposed to be used by other companies, both packaging consumers and producers. Moreover, it could be interesting to apply the same methodology to evaluate the environmental impact for the entire packaging supply chain.

Finally, through a comprehensive packaging evaluation made by packaging companies, the best solution for the consumers is guaranteed both in terms of the environmental impact and for meeting the food requirements.