TEP4854 Experts in Teamwork - Plastic Free Oceans - Group 2
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NTNU

The Green Scale

Your Guide to Sustainable Choices

Plastic Free Oceans

Plastic in Everyday Life

Plastic packaging represents a large share of discarded plastic waste in nature, both in Norway and globally. Therefore, there are major environmental and climate benefits to be gained from collecting and recycling plastic packaging. Plastic packaging that is hard to recycle is generally sent for incineration.

Plastics cannot simply be characterized as something ‘bad’, since they are essential in our everyday live. We require more knowledge regarding the plastics that are put onto the Norwegian market, and the extent to which these plastics can be recycled. We need to know how much and what types of plastics are being used, the quality of the plastics and what additives they contain.

The Problem

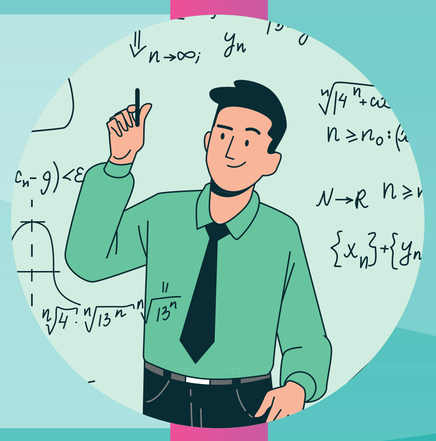
Currently, there is little to no such information available. To reach the goal of increasing the proportion of recycled plastics used in new products, more knowledge is required. This is required for consumers in particular, since their consumption can make the difference in plastic sorting and recycling, by preventing more harmful products to be chosen, and therefore reducing the impact packaging waste makes.

Most people want to do better when it comes to selecting sustainable plastic products, but few are actually aware of what kinds of plastics are used in the products, or how much plastic there actually is. Therefore we propose a grading scheme from A to F as a simple way of informing the consumer about how sustainable a specific plastic product is.

Our Solution

We created an algorithm that gives a product a score based on plastic type, the qualities of the plastic and the plastic packaging to content ratio. A lower score gives a better letter grade. When we decided the test parameters for our algorithms we took a basis in cheese.

The algorithm we designed prefers substantial reductions in plastic more than improving the plastic type for the most common food plastic types, as from our consultation with a materials expert we learned that it is rare that the plastic is in a condition where it can be recycled instead of downcycled no matter what the actual plastic is.

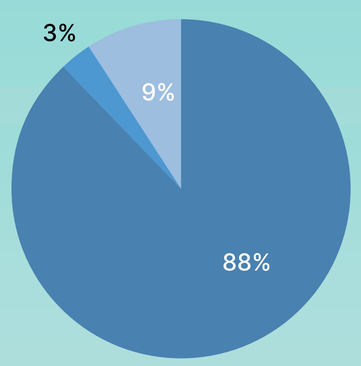


Which option is the least polluting, in terms of plastic?

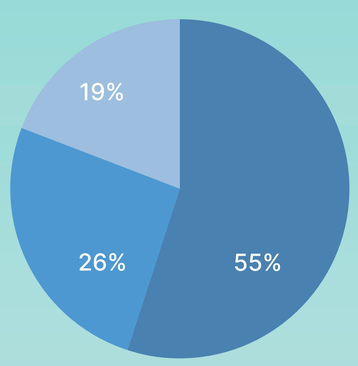
Plastic use
A B C D E F

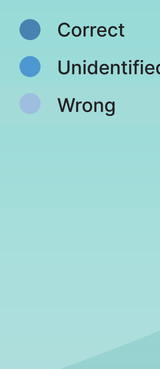
Are you willing to change your purchasing habits to buy more sustainable products?

With label



Without label





According to the results, there was a significant difference in the participants ability to identify sustainable packaging when the label was attached. Without the label, only 55 participants were able to correctly identify the most sustainable packaging. However, this increased to 88% when the label was attached. The percentage of people who were unsure or misidentified the most sustainable packaging decreased by almost 90% (from 26% to 3%), when the product was graded.

When the participants were asked if they consider and compare the amount of plastic in the products they buy, 50% said they do, but only if there is a significant difference. Over 70% said they were willing to change their purchasing habits to buy more sustainable products. Overall, the results indicate that attaching a label that presents sustainability score has a positive impact on consumers ability to identify more sustainable packaging. This can facilitate the purchasing decisions for consumers who are seeking to change their habits and buy more sustainable products.

Our Goal

Our main goal is to get less plastic in the ocean. By addressing the issue of plastic packaging and raising public awareness, individuals can play a role in selecting more sustainable packaging options. Through choosing products with less plastic and taking small actions, we can create a reduction in the production of plastic over time, resulting in a decrease in the amount of plastic that ends up in the ocean.

Our goal is in line with the United Nations Sustainable Development Goals: Goal 12, which focuses on ensuring sustainable consumption and production patterns, and Goal 14, which aims to conserve and sustainably use the oceans. By reducing the amount of plastic in the ocean, we can work towards achieving Goal 14, and by promoting the consumption of sustainable packaging, we can contribute to realizing Goal 12.

Test & Implementation

The plan is to make a test set up before introducing it on the market. The label will be presented on cheese in a grocery store. A poster is showing more details about the label. After a period of time, deviations from the typical sales pattern will be analyzed to gain more insights into consumer behavior.

To implement this label on a large scale in Norway, the government would need to intervene. A team of experts should check how to improve the formula and labeling. Regulations should be put in place to require companies to use the label, and they must reveal the types of plastic and additives they use in their packaging. This data would be compiled in a big database and with help of the algorithm, the score of the label is determined. Additionally, the government should establish another working group to ensure the proper usage of the label.

Research

To better understand consumers’ knowledge and behaviour regarding sustainable packaging, we conducted a survey. We did this with the intention of seeing if the participants could correctly identify the most sustainable packaging option out of two similar products. The survey was primarily done by students in the age group 20-30.

The survey was subdivided into three parts. In the first part, the participants were presented examples of similar products with different packaging, without the label attached. This was used as control questions to compare with the responses in the next part. In the second part they were introduced to the label by an informational poster and were presented the same products, but this time with the label attached. In the last part we wanted to look at people’s behavior towards buying products with more sustainable packaging and if they were willing to change to more sustainable choice