“Reusable packaging for dairy products in supermarkets”

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In this research, the feasibility of reusable/recyclable packaging systems for dairy products in supermarkets is investigated. Currently, 39% of the plastic that is produced is used for packaging. (Spanbroek et al., 2024) Only 41% of the plastic waste gets recycled in Europe. (European Parliament, 2024) These numbers keep growing and are causing major environmental problems. A lot of households buy dairy products weekly, which is why investigating the feasibility of reusable packaging for dairy products could reduce plastic waste. This research focuses especially on supermarkets, since most people buy their dairy products in supermarkets.

The goal of the research was to find systems and materials that can be used for recyclable/reusable packaging in supermarkets for dairy products while maintaining customer satisfaction. Three guidelines were created to help future designers with the further development of reusable packaging for dairy products. The first guideline is user requirements, which help with the understanding of the wants and needs of the customer. These requirements were made with the use of existing literature and a survey in which 84 participants answered 28 questions. From the survey and from the existing studies, it became clear that customers are reluctant to use a reusable packaging system for multiple reasons. The main reasons were a lack of information, hygiene concerns, and limited accessibility.

The other guideline is a table in which systems can be compared with each other based on their properties. The table is created with the help of existing literature. The systems that were compared are a deposit system, a dispenser system, and a door-to-door delivery system. For the deposit system, the customer gets a small refund back, when they return the deposit bottles to the supermarket. By the dispenser system, the customer buys a reusable bottle/container and fills it up with the product they want in the supermarket. When the bottle or container is empty, they clean it and can refill it at the supermarket. For the door-to-door delivery system, the customer notifies the company when they empty the product, then a delivery person will deliver the new products and take the empty bottles/containers with them. These bottles/containers will be cleaned and refilled for the next customer. These systems can be compared on, for example, cleaning, transport, and communication.

The last guideline is another table where materials can be compared with their properties. The materials that were chosen are glass, plastic, and metal. These materials are safe to store food and can be recycled or reused relatively easily. These materials can be compared on their properties, such as recyclability, reusability, and weight.

In conclusion, it is feasible to have reusable/recyclable dairy products in supermarkets. However, if customer satisfaction needs to be maintained, there are a couple of factors that need to be considered, such as a lack of information. A recommendation for further research is to have more properties for the tables to be able to make a better comparison between the different options. Another good addition to this research could be to have expert interviews to get a better picture of why the previous pilots that were done were unsuccessful.

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