

CASE STUDY 2

Tackling Food Loss and Waste

Cheese ripening innovation cuts waste by up 7% with potential to save manufacturers' € 200 million a year

One third of food produced is never consumed: this represents 8% of global GHG and a quarter of the water used in agriculture, as well as crop-land the size of China. Strong business, social and environmental drivers to tackle post-harvest loss and food waste include reducing nutritional loss across the key value chain stages from production to consumption, financial savings, resource use efficiency, higher

performance and contribution to climate targets, food availability and better returns on investments for actors involved.

Case studies will be made available at www.wbcspd.org

WBCSD is collating this series of case studies to scale private-sector action that tackles food loss and waste through fostering more knowledge-sharing and peer-learning.



The context

Royal DSM is a global, purpose-led, science-based company active in Nutrition, Health and Sustainable Living. DSM's purpose is to create brighter lives for all. DSM addresses with its products and solutions some of the world's biggest challenges while simultaneously creating economic, environmental and societal value for all its stakeholders – customers, employees, shareholders, and society at large. DSM delivers innovative solutions for human nutrition, animal nutrition, personal care and aroma, medical devices, green products and applications, and new mobility and connectivity. DSM and its associated companies deliver annual net sales of about €10 billion with approximately 23,000 employees. The company was founded in 1902 and is listed on Euronext Amsterdam. More information can be found at www.dsm.com.

In 2018, DSM's renewed, purpose-led strategy has created a strong platform for growth, focusing on creating innovative solutions to improve nutrition and health, while tackling climate change, resource efficiency and applying the principles of circular economy.

Getting the most out of nature's resources, increasing efficiency and avoiding food waste has been core to DSM's business for years and has resulted in a couple of interesting innovation platforms such as cheese ripening and biopreservation, focusing on extending shelf life naturally to keep food safe, prevent spoilage and overcome logistics challenges.

Cheese losses due to inefficient processes

Currently, manufacturers of natural ripened cheeses, like matured Gouda and Parmesan cheeses lose 3-7% of their cheese production. This can occur due to spoilage by molds when the cheeses are not protected sufficiently during the ripening process, or due to waste when a plastic cheese coating and cheese crust is removed. This plastic cheese coating is currently the most common solution for cheese ripening. It allows the cheese to 'breathe' and develop its mature taste and texture that consumers like, as well as protecting it against molds and yeast during the ripening process.

DSM were committed to finding alternative ways of protecting cheese during the ripening stage against yeasts and molds and thus reducing the waste created. A solution was developed called 'Pack-Age[®]', which is a membrane solution that allows cheese to breathe and develop its taste, while protecting it from external attacks from mold.

DSM's Pack-Age[®] is helping to reduce cut-off waste by 3-7% and increase efficiency in cheese production by up to 4%."

Benefits and results

Pack-Age[®] is the result of the combined expertise of DSM food application and materials scientists Pack-Age[®] has been on the market since 2013 and the results cheese manufacturers are achieving with this solution are impressive. With Pack-Age[®], a natural rind is formed, without the use of a plastic coating, therefore, the cut-off waste can be reduced by 3-7% With the added efficiency, caused by less handling during the ripening phase, yield can be increased by up to 4%. This is equivalent to a profit improvement of € 200 million on an annual basis for the mature cheese industry.

If all Global Gouda and Parmesan cheeses would be ripened in Pack-Age, this could save around 200,000 tons of cheese every year. This means that the amount of milk needed for mature cheese production can be reduced by 3.55 billion liters a year. That is the equivalent to milk from 400,000 cows that can be used for other dairy applications.



Remaining challenges

Despite this innovative solution, challenges remain in converting the entire market to adopt this cheese membrane technology. Manufacturers are often attached to their traditional ways of making cheese and they need convincing that such a radical change in the ripening method really works. Testing can take up to 12 months.

Cheese producers also need to install specialized equipment to apply the membrane, which takes time and requires a capital investment. "Radical change demands commitment, knowledge and science to prove the concept to the market," says Danielle van Zuilen, DSM's Business Manager for cheese preservation.

WBCSD

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world.

We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD \$8.5 trillion and with 19 million employees.

Our Global Network of almost 70 national business councils gives our members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver high-impact business solutions to the most challenging sustainability issues.

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