Reduction and Upcycling of Food Waste

Material Issue
Circular Economy

Management information

Relevance to our business

As a manufacturer of food ingredients, the Fuji Oil Group recognizes the efficient use of limited food resources as a material issue, given the concerns over future food supply posed by population growth, climate change, and biodiversity loss. Food loss and waste reduction is an explicitly defined target of Goal 12 of the SDGs. Leveraging our position as a B-to-B food ingredient manufacturer, we help reduce food loss in our operations and the operations of our customers, B-to-C food manufacturers, and reduce food waste at retailers through our product development.

Basic approach

The Fuji Oil Group develops technologies that not only extend the best-before date of our products and reduce losses in our manufacturing and distribution processes, but also enable customer products that contain our products to be kept fresh. In this way we help reducing waste at several steps in the food value chain. Furthermore, upcycling byproducts and materials, which otherwise would be wasted, by using them as raw ingredients to create new products with added value is an important strategy for reducing loss during manufacturing.

Management system

The Chief Technology Officer (CTO) oversees initiatives in this area. The Sustainability Committee,[*1] an advisory body to the Board of Directors, monitors the progress and results of initiatives as a material ESG issue.[*2]

*1 https://www.fujioilholdings.com/en/sustainability/sustainability_management/

*2 https://www.fujioilholdings.com/en/sustainability/materiality/

Goals / Results

○ At least 90% complete △ At least 60% complete ✕ Less than 60% complete

FY2022 Goals	FY2022 Results	Self-assessment
Develop technologies and ingredients that prevent deterioration when food products are stored for long periods	• Established technologies to improve longevity and resistance to degradation over time • Brought seven products to market	○
Develop technologies for transforming byproducts into value-added products	Confirmed effectiveness of soluble pea fiber as a stabilizer for acidic plant protein drinks	○

Analysis

We gained customers' understanding of our strategy of extending best-before dates by maintaining the quality of products during storage. This made it easier to partner with customers, which led to the development and adoption of new ingredients. We continue to work on research and development to achieve further reductions of food loss and waste.

Next step

We will focus our efforts on developing ingredients and technologies that preserve the “freshly made” quality of foods. We will also search ways to make good use of what is typically discarded as waste. We set the following goals for FY2023.

- Develop technologies and products to maintain food quality longer and expand the market
- Add new functions and seek value through effective use of byproducts

Specific initiatives

Developing ingredients that preserve food quality

With a rise in household demand for processed foods in recent years, the market is growing. One particularly popular type of these products is retort pouch foods, which are easy to prepare and suitable to keep as non-perishable food. One quality challenge of this type of product is the ability to retain color and flavor during the high temperature sterilization process. We have thus developed for the processed-food market a new cooking cream that is resistant to heat, acid and salt, which are factors that cause quality deterioration in processed foods. Extending the best-before dates of products is one of the key measures promoted by the Japanese government to reduce food waste. By providing technologies and materials that maintain quality, we make retort pouch foods and other non-perishable food products more delicious and varied, which also helps reduce food waste.

Creating functional food ingredients through upcycling

The Fuji Oil Group sells food ingredients made by separating plant-based raw materials into their constituent elements, such as oils, fats and protein. Using components of a raw material effectively is a crucial aspect of resource efficiency. We aim to reduce food residues and create high value-added ingredients through upcycling, one example of which is the upcycling of process streams in the production of soybeans for oil. After extracting oil from the soybeans, we separate the soy protein, and from the curd byproduct we separate the water-soluble soy polysaccharides.
Another example of this is our effective use of starch residues. The manufacturing process for pea starch, which is an ingredient of cellophane noodles, generates large volumes of pea fiber as a byproduct. We developed an upcycling technology for processing soluble pea fiber into a stabilizer of acidic milk drinks and acidic plant protein drinks. In this way we make effective use of a byproduct, that would have little value otherwise. We will begin official sales at our German plant specializing in soluble pea fiber in 2023.

Plant specializing in soluble pea fiber (Fuji Brandenburg GmbH)

Upcycled product SoyBio MA

Fuji Oil Co., Ltd. has begun sales of SoyBio MA, a bioremediation*1 agent for detoxifying polluted soils (Distributor: Shoei Yakuhin Corporation). SoyBio MA works by serving as a source of nutrition for microorganisms that break down toxic substances. The product is especially effective in remediating industrial brownfield sites that have been polluted by volatile organic compounds (VOCs) and oil. SoyBio MA has also a lower price than other soil amendments on the market, helping to reduce project costs. SoyBio MA is also used to clean contaminated groundwater and for a number of other uses every year.
The product draws on Fuji Oil’s expertise in making food products such as soy meat, which has become popular as a plant-based food, as well as nutritionally rich soy protein and soy peptides. Soy whey, the main ingredient used to make SoyBio MA, is a byproduct of food production where the soy protein is separated, heated and concentrated, which is naturally rich in nutrients.
In the future, we aim to use the soil improvement ability of soy whey to enter the agricultural sector, particularly the biostimulant*2 market.

*1 A process of repairing environmental pollution that harnesses the natural activity of microorganisms.

*2 Substances, microbes, or materials that are a mixture of the two, that improve the natural processes of plants when applied to plants or soil.