

Solutions for Health and Well-being



Governance

The Fuji Oil Group's Sustainability Committee^{*1} is an advisory body to the Board of Directors that is chaired by the President and CEO. It deliberates on and monitors the material ESG issue^{*2} of Health and Nutrition from a multi-stakeholder perspective, and recommends the results to the Board. The Chief Technology Officer (CTO) oversees the progress of initiatives for Solutions for Health and Well-being, a priority action in this material issue.

*1 Governance, Strategy, Metrics and Targets, Risk Management > Governance

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

*2 Governance, Strategy, Metrics and Targets, Risk Management > Strategy, metrics and targets

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Strategy

As we transition into super-aging societies and face escalating healthcare costs and the potential collapse of social security systems, people have become more aware of the need for living healthy and fulfilling lives. We need solutions that balance physical health and mental well-being, leading to longer, healthy lives. The Fuji Oil Group provides food ingredients such as plant-based proteins, and vegetable oils and fats for delicious and healthy food. As such, our social mission as a company is to meet these needs.

Poor lifestyle habits, excessive sugar intake and salt intake, overeating or undereating, and lack of exercise can eventually lead to various mental and physical disorders.* For example, excessive sugar intake carries the risk of developing lifestyle-related diseases such as diabetes and obesity, which in turn can lead to many serious diseases, as well as declining cognitive function. We conduct research to create products aimed at restoring pre-disease states to health. In doing so, we believe that, even as they age, people will be able to achieve their ideal fitness and continue to maintain their social connections, with bodies that can move and do whatever it is they want. With this concept of preventing pre-disease through food, the Group is helping address physical and mental health issues faced by people around the world. Furthermore, we believe that all our efforts will result in an increase in our corporate value as well.

* Includes poor appetite, physical or mental pain, low mood. Also called mild disorder or pre-disease state.

Risk management

At our Group, we believe that in order to work on issues related to health and well-being through food, and conduct research to create products aimed at restoring pre-disease states to health, we need to prove their efficacy in humans. Research on humans requires high ethical standards and privacy protection. To achieve this, we have established an Institutional Review Board (IRB) registered with Japan's Ministry of Health, Labour and Welfare's reporting system, with doctors, experts, and ordinary people who have undergone research ethics training by the Association for the Promotion of Research Integrity (APRIN) as members. The IRB reviews all human clinical trials involving the Group and also conducts follow-up evaluations after the trials.

At our research and development centers, we focus on DHA/EPA^{*1} and soy peptides^{*2} among various food ingredients that help in promoting health. We carry out human trials as proofs of concept (PoC) to shed light on the benefits of consuming these ingredients in food. For example, we have been working on determining whether there are health benefits to making easily-oxidized DHA extremely resistant to oxidation.

*1 Docosahexaenoic acid (DHA)/ eicosapentaenoic acid (EPA). These are fatty acids that are recommended to be consumed from food because they are inefficiently synthesized by the body. Studies have shown that DHA/EPA have various health benefits, including preventing memory and concentration loss, and reducing triglyceride levels.

*2 Peptides are substances created in the process of breaking down proteins. Peptides formed by the enzymatic breakdown of soy proteins are called soy peptides.

Metrics and targets

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

FY2023 Goals	FY2023 Results	Self-assessment
Conduct a comparative study of PRORARE [®] (fresh DHA) and general oil (general DHA) using easy-to-ingest soft capsules for an internal proof of concept	Conducted a volunteer study with healthy subjects using PRORARE [®] (POV* = 0.5) and general DHA oil (POV = 12, within the Food Sanitation Act limit). There were 21 participants each for the PRORARE [®] and general oil groups, with an intake period of 2 months.	○
Aim to identify one or more oxidation markers to bring out the effects of antioxidant treatment in humans (establish differentiated advantages)	Comparisons before and after taking PRORARE [®] showed improved nutritional status (increase in serum albumin) and enhanced bone metabolism markers.	○

* Peroxide value (POV). Indicates the degree of deterioration due to storage conditions and autoxidation.

Reduction of trans fatty acid content

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

FY2023 Goals	FY2023 Results	Self-assessment
Palmaju Edible Oil Sdn. Bhd. (Malaysia), Fuji Oil (Singapore) Pte. Ltd., Fuji Oil (Zhang Jia Gang) Co., Ltd. (China): Reduce TFA in all products subject to change (to less than 2 g/100 g of total fat or oil)	<ul style="list-style-type: none"> Completed the reduction for all applicable products at Palmaju Edible Oil Sdn. Bhd. (Malaysia) and Fuji Oil (Zhang Jia Gang) Co., Ltd. (China) Fuji Oil (Singapore) Pte. Ltd. is expected to finish the reduction around September 2024 	○

Reduction of sugar intake

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

FY2023 Goals	FY2023 Results	Self-assessment
Expand the market for low-sugar/ protein-fortified foods	Promoted fortified foods and other concept proposals, and succeeded in getting bakeries and processed food markets to use soy protein	○

Analysis

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Both the ingestion of oxidized DHA oil at typical levels and oil containing DHA with extremely low oxidation did not result in any deviation from the healthy range. However, ingesting DHA oil with extremely low oxidation showed significant changes not only in lipid metabolism but also in biomarkers related to antioxidants and energy metabolism. Moving ahead, we will focus our research on the advantages of non-oxidization and the functionalities of DHA.

Reduction of trans fatty acid content

In FY2023, trans fatty acids (TFAs) were reduced in all products at Palmaju Edible Oil Sdn. Bhd. (Malaysia) and Fuji Oil (Zhang Jia Gang) Co., Ltd. (China). This progress was achieved thanks to legislation in countries around the world, improved customer understanding of the need to reduce TFA intake, and the development of a Group-wide system for making reductions.

Fuji Oil (Singapore) Pte. Ltd. has finished coordinating with customers and plans to complete their reduction by the first half of 2024. By FY2023, 13 out of 14 relevant Group companies outside Japan have completed the switch to low-TFA products by drawing on Fuji Oil Group expertise to maintain product taste and functionality.

Reduction of sugars intake

With the consumer demand for low-carb, high-protein rice and noodles, the use of soy protein as a substitute ingredient is becoming more popular. In recent years, drugstores have also been actively selling products promoting nutrition and health. We marketed proposals based on the concept of delicious protein supplementation, resulting in the Group's soy protein being used in snacks exclusively sold at the drugstores.

Group companies outside Japan	Target date for switching to low-TFA products				
	2019 or earlier	2020	2021	2022	2023
FUJI OIL (SINGAPORE) PTE. LTD.					First half of FY2024
PALMAJU EDIBLE OIL SDN. BHD. (Malaysia)					Completed
FUJI OIL (ZHANG JIA GANG) CO., LTD. (China)					Completed
WOODLANDS SUNNY FOODS PTE. LTD. (Singapore)			Completed		
PT. FREYABADI INDOTAMA (Indonesia)				Completed	
HARALD INDÚSTRIA E COMÉRCIO DE ALIMENTOS LTDA (Brazil)			Completed		
FUJI OIL EUROPE (Belgium)		Completed			
FUJI GLOBAL CHOCOLATE (M) SDN. BHD. (Malaysia)		Completed			
FREYABADI (THAILAND) CO., LTD.	Completed				
INDUSTRIAL FOOD SERVICES PTY. LTD. (Australia)	Completed				
FUJI OIL (THAILAND) CO., LTD.	Completed				
TIANJIN FUJI PROTEIN CO., LTD. (China)	Completed				
FUJI VEGETABLE OIL, INC. (U.S.)	Completed				
BLOMMER CHOCOLATE COMPANY (U.S.)	Completed				

Next steps

To provide solutions to issues related to health and well-being through food, it is important to provide evidence and advantages in terms of the health functions of our food ingredients, and to create the motivation for consumers to want to consume these ingredients. With these in mind, we set the following goals for FY2024.

- Expand the market for foods that help improve health and well-being
- Establish differentiated advantages of the health functions of stabilized DHA/EPA

Specific initiatives

Benefits of taking DHA oil with extremely low oxidation

DHA oil is promising to be effective in preventing dementia, and is generally ingested in the form of a soft capsule containing the functional oil. However, currently available soft capsules containing DHA/EPA have a problem with the characteristic odor (fishy odor peculiar to oxidative deterioration of ω -3 fatty acids) that accompanies oxidative deterioration of the oil. The odor of deteriorated oil experienced in the breath after taking the capsule has also been cited as a reason for discontinuing their intake. We believe that the stabilized DHA-rich oil PRORARE[®], with its extremely low oxidative deterioration of DHA oil, would not cause any bad or unpleasant smell when burping, even when taken in soft capsule form. To test this, we asked volunteers to take soft capsules containing PRORARE[®] or general DHA oil. During the trial, a survey given to the subjects (conducted with the subjects not knowing whether they were taking PRORARE[®] or general DHA oil) showed that the group who took PRORARE[®], with low oxidative deterioration of DHA oil, did not experience any bad or unpleasant smell when burping. In contrast, among subjects who took soft capsules containing the placebo of general DHA oil, 67% of the respondents said they noticed a bad smell in their burp, and 93% said the odor was unpleasant, showing the superiority of PRORARE[®] in terms of eliminating odor. Going forward, in addition to the physiological functions of DHA, we will also study the mechanism by which we sense the oxidation of DHA oil and conduct emotional analysis of what makes people prefer and want to consume DHA.



Expanding our lineup of low-sugar foods

Our Group is working to propose and provide nutritionally balanced food products that replace some of the sugars in high-carb foods (e.g., staple foods, sweets) with protein in the Japanese market. For instance, we propose adding soy protein ingredients in breads eaten as a staple food, to replace some sugar with protein to obtain a high-protein bread (containing 16.2 g or more protein per 100 g). We have received positive feedback that this was an easy way to consume protein without sacrificing taste. Several customers are already selling healthy breads enriched with our soy protein ingredients.



Protein-enriched meal options

Reduced-sugar and sugar-free chocolate

According to the market research firm IRI, sales of sugar-free chocolate have been declining along with the overall demand decline in the North American chocolate market caused by rising prices due to inflation and other factors. Despite this trend, the sales of chocolate in the health and wellness segment of Blommer Chocolate Company (U.S.) continue to rise. The company offers a range of low-sugar, sugar-free, and reduced-sugar chocolate products, as well as chocolate products made with natural or artificial sweeteners. Sales of low-sugar, sugar-free, and reduced-sugar chocolate products increased by 3%, while sales of chocolate products using natural sweeteners increased by 23.3% compared to 2022. Sales of dairy-free chocolate are also on the rise, with market sales up by 17.9% compared to 2022. Through these products, we will continue to work on solutions for health and well-being. Our research and development will also continue exploring new ingredients as sugar substitutes and fulfilling our customers' needs.