

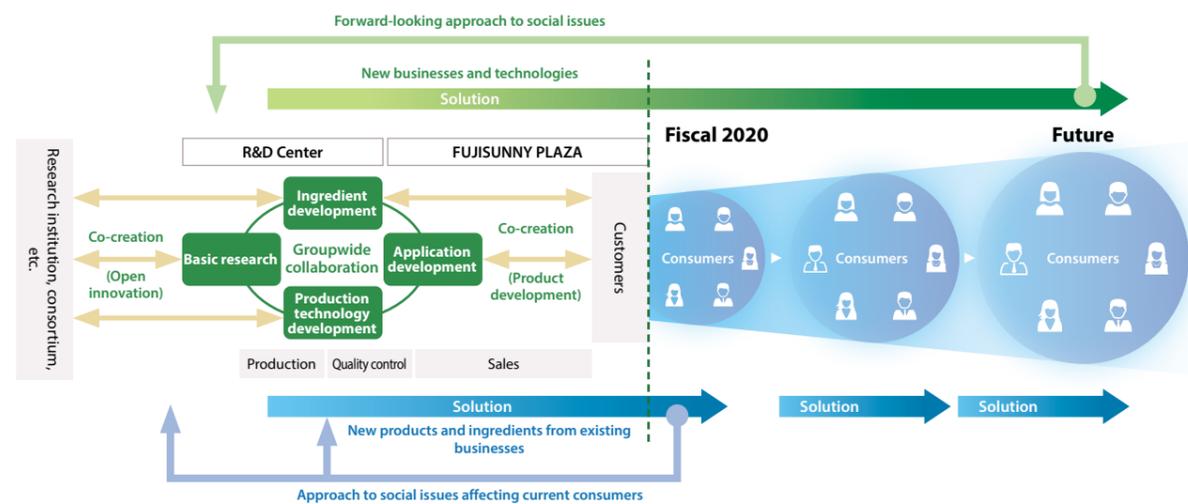


# CTO SECTION

Message from the CTO ..... 69

The Fuji Oil Group's Technology ..... 70

## Short-Term and Long-Term Approaches toward the Resolution of Social Issues



By approaching social issues from both short-term and long-term perspectives, we are conducting R&D activities toward the creation of new products, new technologies, and new businesses that realize Plant-Based Food Solutions. Moreover, in a bid to promote innovation, we are stepping up our open innovation efforts with universities and research institutes in Japan and overseas, as well as our co-creation activities with customers.

## Message from the CTO

### Establishing a Global R&D System for Our New Era

**Haruyasu Kida**  
Senior Executive Officer  
Chief Technology Officer (CTO)



Through the acquisition of Blommer Chocolate Company, the Fuji Oil Group took a significant step forward with the globalization of its corporate structure and boosted its overseas sales ratio to roughly 60%. However, from an R&D standpoint, our core resources are still heavily concentrated in Japan and we must quickly establish an R&D system tailored to the needs of a truly global company. To that end, we have set out "the establishment of an R&D network conducive to a global company" and "the introduction of new technology and businesses that will serve as the pillars of Fuji Oil for the next 20 to 30 years" as issues to be addressed. Recognizing the urgency of such issues, we are working unstintingly toward their resolution.

In an effort to construct our global R&D network, we engage in active discussions with our overseas Group companies through TIEMs (Technical Information Exchange Meetings) and R&D working teams to share information on global issues and work toward resolving them. The Company is also placing emphasis on the globalization of its R&D staff in Japan by promoting open innovation with universities and research institutions around the world and dispatching researchers to its overseas bases.

In addition, our R&D into new technology

(backcasting), which will serve as the pillar of Fuji Oil for the next 20 to 30 years, and the flourish of new businesses that we are currently focused on (forecasting) are imperative to our ongoing growth. With this in mind, Fuji Oil restructured its organizational and evaluation systems in fiscal 2020, involving the addition of the New Business Development Department, which was previously the Marketing Group, to the Research Institute for Creating the Future. Moreover, we will move forward with the selection and concentration of themes for the medium to long term. In addition to raising the added value of its plant-based foods through the use of integrated food solution technology, which is currently a key theme, the Company will concentrate on and engage in areas that need to be addressed right away in order to do its part as a business to help resolve social issues by 2050.

The staggering global impact of the spread of COVID-19 this year has reminded me of the fact that Japan is a part of a borderless global society in which the human race can still be vulnerable and defenseless. By anticipating the changes to people's lifestyles and values in our world after COVID-19, we will reflect on the ways in which we can contribute to global recovery through our belief in working for the benefit of humanity and set the stage for our new era.

### Pursuit of an R&D Framework Underpinning Global Management

As a step toward its future goal of establishing a robust R&D framework underpinning global management, the Fuji Oil Group is enhancing its Groupwide R&D framework that draws on the capabilities of its domestic resources.

	Fiscal 2020	First Step	Projected Future
	Heavy concentration of resources in Japan	Development of Japan-centric network and strengthening of overseas business	Establishment of R&D Centers in regions outside of Japan and Singapore and pursuit of a more robust global R&D structure
<b>R&amp;D Employees</b>	Japan: 70% Overseas: 30%	• Incorporate overseas project mission into ingredient development team in Japan	Japan: 50% Overseas: 50%
<b>R&amp;D Centers</b>	Japan: Fuji Science & Innovation Center Tsukuba Research and Development Center Overseas: Asia R&D Center	• Strengthen Groupwide network • Review allocation of R&D resources	Establishment of R&D Centers in China, Europe, and North America

# The Fuji Oil Group's Technology

## Embracing Change toward the Creation of Our New Era

The speed with which values are shifting is increasing across the globe. We will engage in concerted Groupwide efforts to improve our R&D activities with the aim of resolving the world's social issues and spearheading the Fuji Oil Group's growth into the future.

### Research and Development System

Fuji Oil is stepping up its research and development through the close collaboration of its basic research (R&D Division for Future Creation), ingredient development, application development, and engineering development teams.

Basic Research (R&D Division for Future Creation)	Ingredient Development	Application Development	Engineering Development (Engineering)
			
Explore new possibilities for plant-based food ingredients and devote our attention to themes that breed resolutions to social issues over the medium to long term	Hone the development of new products tailored to customer needs	Implement co-creation activities with customers by drawing on the capabilities of FUJISUNNY PLAZA; leverage Fuji Oil's products to develop captivating products for customers that bring excitement to consumers	Develop production processes in a timely manner and establish new plants and production facilities by embracing safety, quality, and the environment

### Confronting the Challenge of Creating the Future of Foods

At the Research Institute for Creating the Future, we assess the issues of society, the environment, and humanity that will emerge in the future and conduct research aimed at resolving such concerns. In fiscal 2020, Fuji Oil was reformed into an organization tasked with the missions of exploring new food resources, creating new ingredients and technologies that underpin Plant-Based Food Solutions (PBFS), and ascertaining market values and a society imbued with new technology based on *Kotozukuri* (creating movements). We will continue to realize new value through our research on plant-based food ingredients centered on the agricultural food industry. By harnessing the strengths of its technology to facilitate the achievement of long-term, sustainable growth, the Fuji Oil Group will strive to become a company that creates the future of foods.



**Akihiro Nakamura**  
Executive Officer  
Research Institute for Creating the Future

### Initiatives Tailored to the Changing Operating Environment

#### Global-Minded R&D Initiatives

With the aim of building an R&D framework that facilitates our global management, we are working to share information with the R&D departments of our overseas Group companies. Our R&D efforts in Japan are taking center stage and we are steering our co-creation activities across the globe. Moreover, we are forging and bolstering our Groupwide network in a bid to roll out the proprietary ingredients and technology developed at our various operating bases worldwide to other regions in a timely manner.

#### Resolving Issues through the Reinforcement of Our Global R&D Network

Innovation entails the cooperation of diverse human resources with different values to work toward a common goal. At the Fuji Oil Group, we share information on global issues and work to resolve them by holding TIEMs on a regular basis and organizing R&D working teams for critical issues.

#### TIEM (Technical Information Exchange Meeting)

TIEMs are meetings that assemble R&D personnel working in similar lines of business around the world with the goal of sharing technology and market information, exchanging information on new products and technology, honing the skills of R&D staff, and improving communication between Group companies.



#### R&D Working Teams

R&D working teams engage in the swift resolution of global research-related issues that are difficult to resolve merely through the capabilities of a single company.

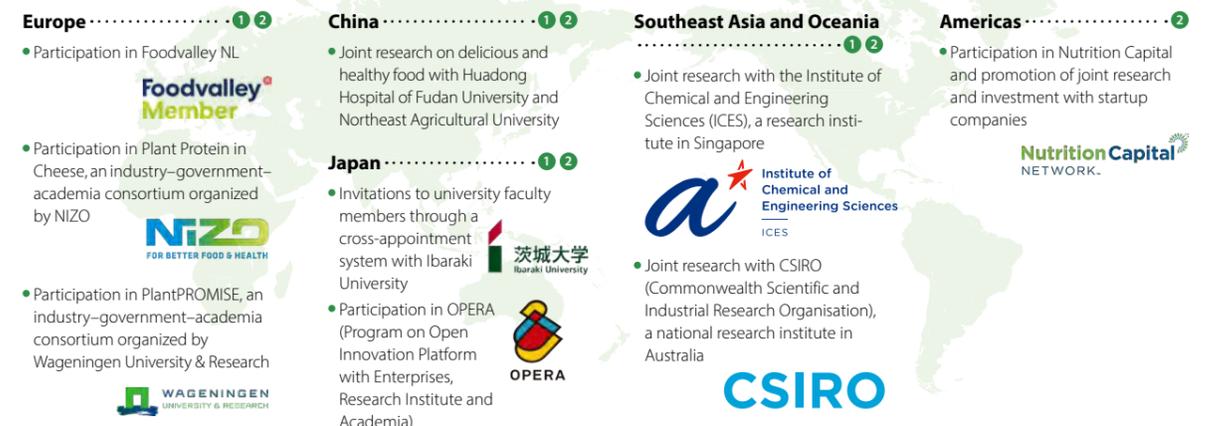


#### Promoting Open Innovation

The Company actively promotes open innovation on a global scale with the aim of stepping up the growth of new businesses and acquiring technology currently not in its portfolio. We will develop industry-academia collaboration consortiums with research institutions worldwide and participate in other consortiums overseas with a view to creating new value.

#### Main Objectives of Open Innovation

- 1 Expedite the growth of new businesses: Acquisition of technology for PBFS, etc.
- 2 Acquire technology currently not in the Company portfolio: Approaches to upstream processes related to social environments such as climate change, etc.



#### Overseas Study and Training Programs for Cultivating Human Resources and Collecting Information

The Company actively dispatches its R&D staff to its overseas bases in order to collect information from abroad and nurture its global network.

In fiscal 2018, an employee was dispatched to the University of Copenhagen (Denmark), while in fiscal 2019 another employee was dispatched to Wageningen University & Research (the Netherlands), which will play host again in fiscal 2020. In fiscal 2020, we are also planning to conduct overseas training programs in Europe and Canada. (As of April 2020)

#### Creating Environments That Allow Our Researchers to Excel

We are forging ahead with our efforts in human resource development and reforming our organizational culture in our mission to further evolve Fuji Oil's tradition of freely and energetically embracing new challenges and to realize innovation that is different from our existing technology. In addition to providing its researchers with opportunities to pursue new challenges, such as the in-house Intrapreneur System and the dispatch of personnel to overseas bases, the Company is revising its evaluation system for researchers and putting in place a framework for recognizing the efforts of those who strive to improve.



**Vipavee Cherdvorapong**  
Fuji Oil Co., Ltd.  
Soy Ingredients Research and Development Section 3



Fuji Oil's soy meat, offering various types of fiber and granules for an array of uses  
\* JPVS Vegan Recommendation Mark  
Certified by the Japan Vegetarian Society (JPVS), the JPVS Vegan Recommendation Mark recognizes vegan food products that prohibit the use of honey and animal-based food ingredients in their raw materials and are rigorously examined for contamination during the production process.



First product certified with JPVS Vegan Recommendation Mark\*

**Creating Products That Contribute to Healthy Lifestyles and Delicious Foods**

I have been proposing soy meat to the Group's various customers based on its PBFS concept. As a part of this effort, we have engaged in the development of vegan food products with major convenience store chains to accommodate the diversification of food and the increasing health consciousness of consumers. I must admit that the inability to use animal-based raw ingredients certainly posed a challenge. However, the combined effects of the fiber and granules of our soy meats, which vary in terms of size and texture, have allowed us to achieve the tenderness of regular meat, and the ability to evenly disperse their juiciness through the use of oil and fat technology resulted in the creation of a delicious product. Going forward, we would like to continue working to develop new products toward our goal of contributing to the healthy lifestyles of consumers and delicious foods.



Presentation of exhibit by students of HAS University of Applied Sciences and Fuji Europe Africa employees



Pizza containing Soy Delice plant-based cheese



**Liz Kamei, Ph.D.**  
Director of Open Innovation & External Partnerships  
Fuji Europe Africa B.V.



**Creating Win-Wins through Open Innovation!**

With the aim of shifting the development of next-generation plant-based cheese alternatives into high gear, I participated in a "Plant Cheese" research consortium as a part of efforts to promote open innovation and met with the students of HAS University of Applied Sciences (the Netherlands). We served as a mentor for the students for their graduation project that involved conducting market research on plant-based cheese alternatives in Europe. Through this involvement, we not only contributed to the project's remarkable results but also gained some valuable experience. Fuji Oil's Soy Delice brand was showcased at the event, which was seen as an opportunity to establish a new food industry network in Europe. The consortium turned out to be a win-win situation for both the students and Fuji Oil alike, as it led to the creation of new value for Fuji Europe Africa. A win for all!



**Sotaro Iwabuchi**  
Fuji Oil Co., Ltd. Food Product Group  
Engineering Development Department,  
Safety and Quality Management  
and Production Technology Division



New chocolate factory at Kanto Plant, launched in 2019



A multifaceted team of experts who share their know-how to establish an optimal production process

**Innovating a Manufacturing Process That Facilitates the Global Rollout of Technology**

In devising a manufacturing process for chocolate, which is commonly used even in the healthcare and souvenir markets, a variety of factors such as flavor, physical features, color, and form must be taken into account from the perspective of the research department. At the new chocolate factory located on the site of the Kanto Plant, the Engineering Development Department assembled a new manufacturing process that generates a wide assortment of products at high volume without compromising operability or production efficiency. In addition to installing instrumentation devices that monitor and control each process with the aim of ensuring safety, our ultimate priority, we have stepped up the quality and security of the use of such devices and developed automated technology in response to the issue of labor shortages. We are being counted on to expand our technology worldwide.

Moving forward, we will raise the level of our global business even further by innovating manufacturing processes and globalizing our technology.



Development of chocolate products at Harald



Participating member of TIEM in fiscal 2019



**Rosileide Siqueira Ferreira**  
Harald Indústria e Comércio de Alimentos Ltda  
R&D Coordinator



**Developing Products by Drawing on the Strengths of Our Group Network**

Through our participation in TIEM, we have been able to deepen our understanding of market and product trends and the status of Group companies as well as exchange information on the latest issues in research and development. The lively interaction between participants and the countless exchange of insights have expanded the knowledge of everyone involved and led to greater opportunities for product development. TIEM has allowed us to learn about the ways in which customers resolve certain issues and acquire know-how on oil and fat technology, which we have been utilizing greatly in our development of Harald products.

The R&D departments at our various Group companies each play a central role in the growth of our Chocolate Business. I believe the Chocolate Business is proceeding along the right path thanks to the cooperation and the continuous exchange of insights between the R&D departments. In this way, we will come together as a Group to speed up the pace of our innovation for resolving global concerns.

**We will advance technology and product development to resolve the concerns of societies across the globe through our collective Groupwide efforts.**

The Fuji Oil Group has continued to invent revolutionary technologies from new vantage points.

Guided by its DNA of "work for people," which has been ingrained in its workforce since its founding, the Group will adapt accordingly to changes in the times, no matter how fast the pace of change may be. We will engage in research and development to uncover the future of the world of food by co-creating internally and externally and collaborating as a Group.

