

Eat Well, Live Well.



FY2023 Ajinomoto Co., Inc. Business Briefing

Realizing the Roadmap in Green Area

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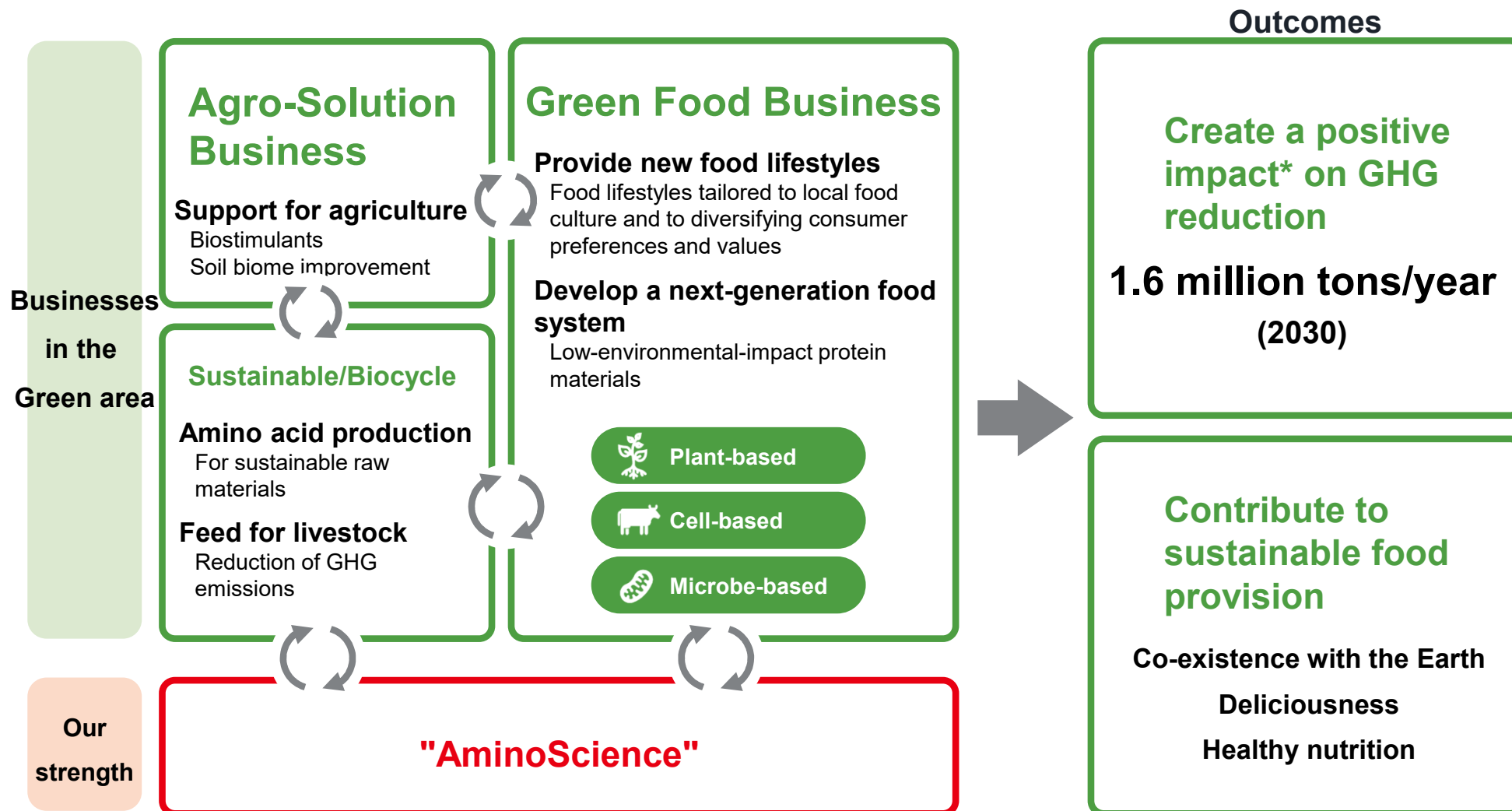


Today's Message

- **We will promote Green Food and Agro-Solution businesses using "AminoScience" and build businesses with sales of 100 billion yen by 2030. This will contribute to the construction of a sustainable food system and the reduction of GHGs through our business.**
- **The Green Food business will promote the development of next-generation food systems, such as low-environmental-impact plant-based food systems, cultured meat food systems, and precision fermentation food systems, and will offer food lifestyles tailored to local food cultures and to diversifying consumer preferences and values.**
- **We will speedily construct a business foundation through collaboration with startup companies. Starting with solutions for plant-based foods, consumer business originating in Singapore, we will cooperate with regional headquarters to expand the business globally.**
- **The Agro-Solution business will work through biostimulants toward enhanced crop yields, resistance to climate change, enhanced nutrient content, and reduction of environmental impacts.**

Our Vision for the Green Area

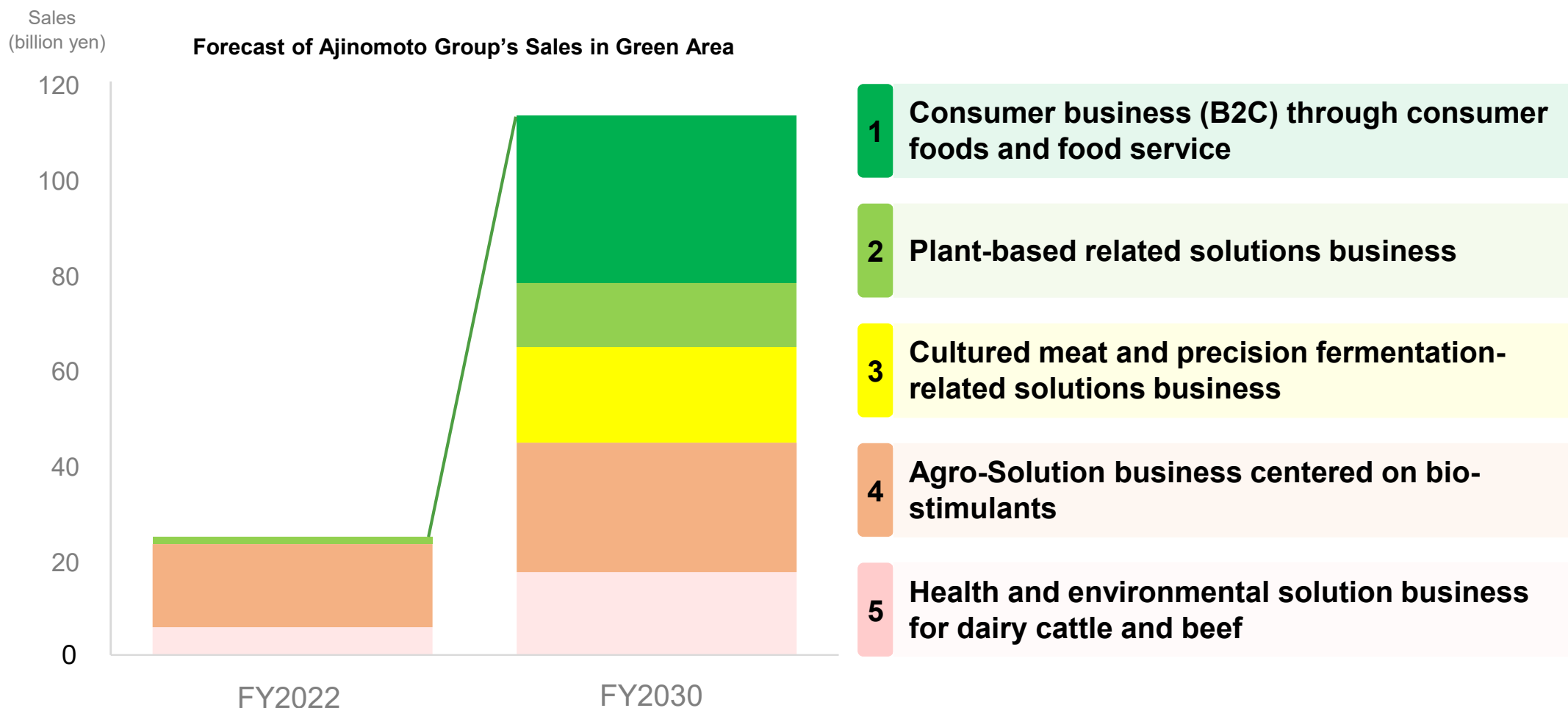
We will advance the Green Food business and Agro-Solution business, and will contribute to preservation of the global environment (including reduction of GHGs) and sustainable food provision.



*This does not refer to GHG reductions by our Group's manufacturing, it refers to the effect of GHG reductions from switching to a new food system.

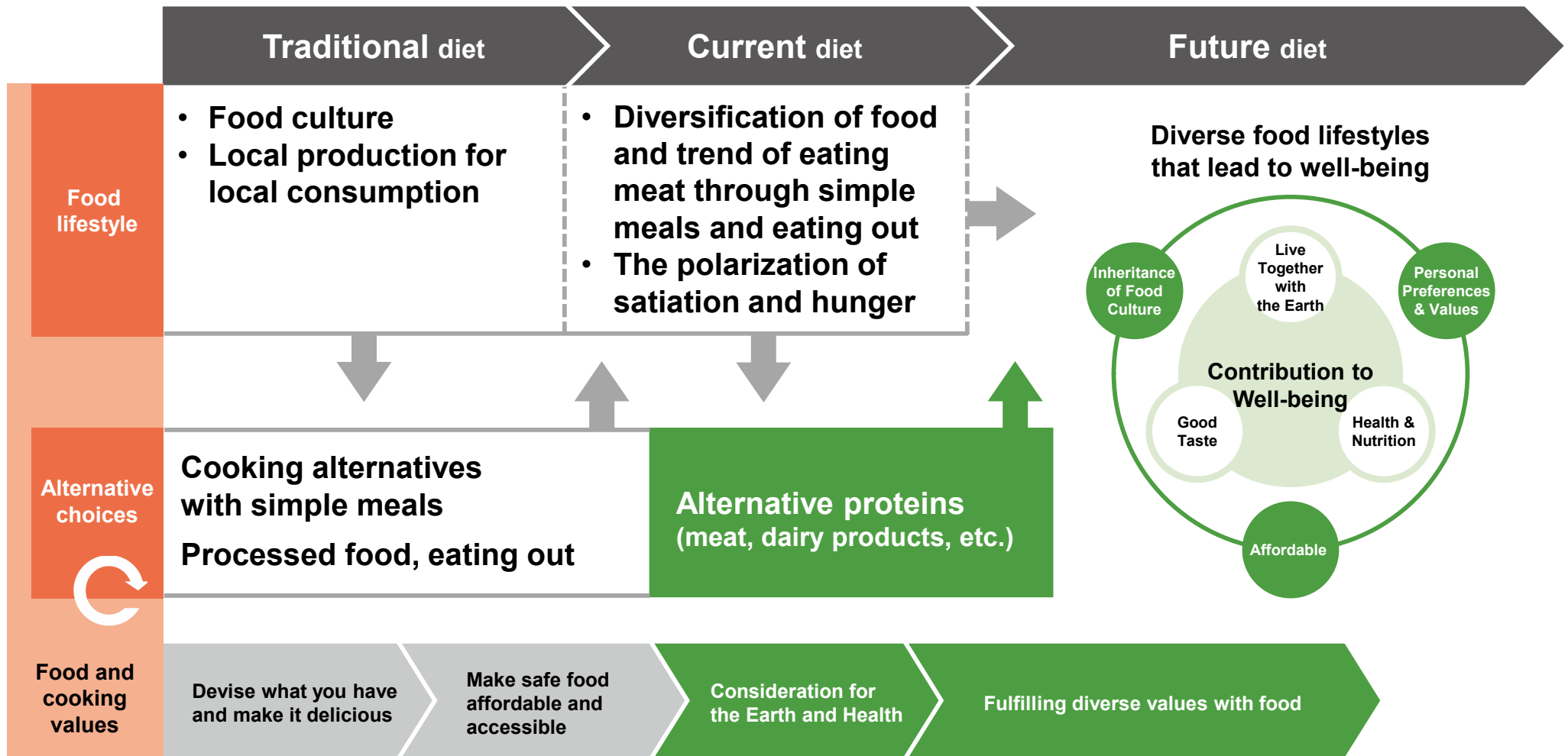
Business Strategy and Targets

Expand business globally from food ingredients and agricultural materials to food B2C, starting with unique B2B solutions that fuse “AminoScience” and food technologies.



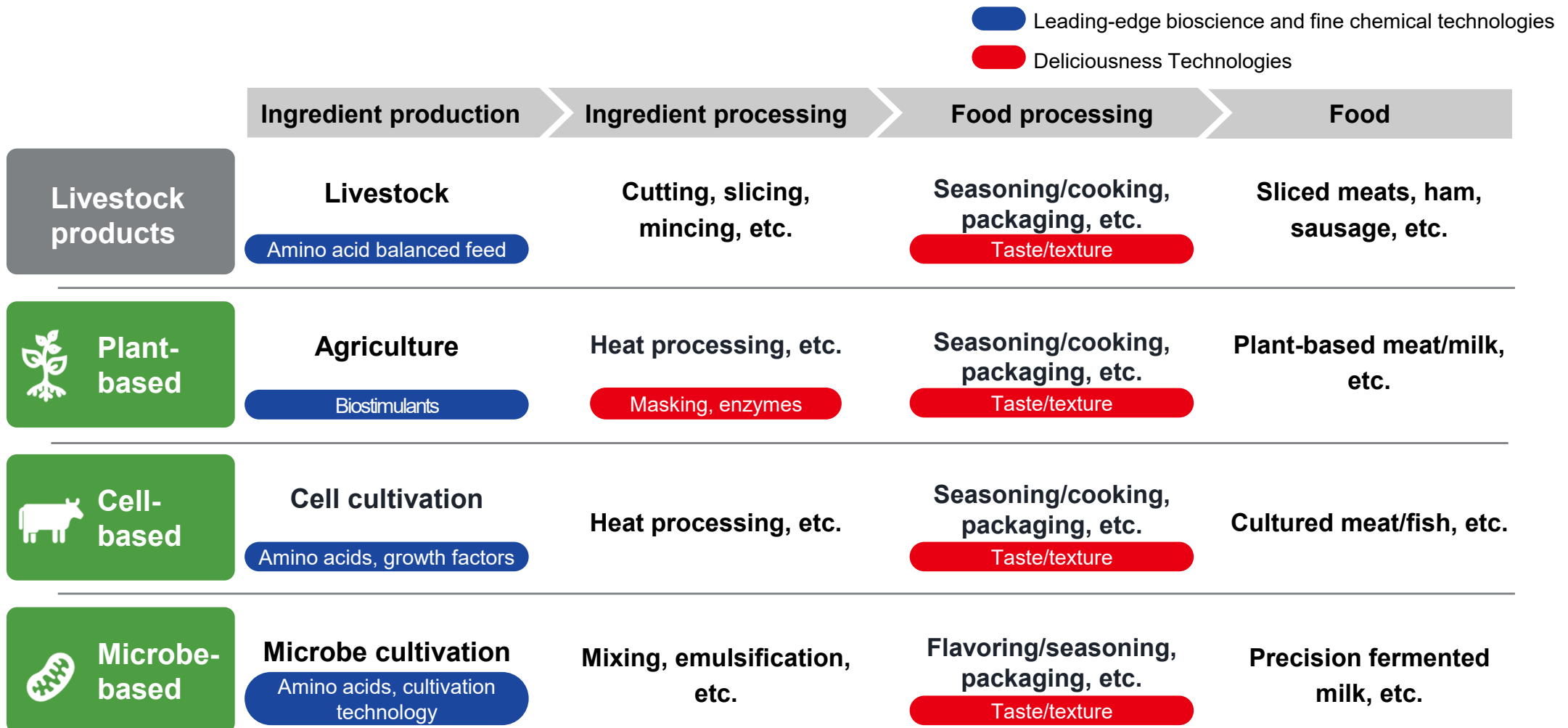
Our Vision for the Green Food Business

Proposing diverse food lifestyles that lead to well-being.



Toward the Construction of a Next-Generation Food System




We will combine Delicious Technologies and leading-edge bioscience and fine chemical technologies to construct a food system for higher-added-value alternative protein foods.



Toward the Construction of a Next-Generation Food System

The environmental impact of the new food system is considered to be about 1/10 to 1/100 that of livestock products.

Environmental impacts of protein sources

	Greenhouse gas emissions (kg CO ₂ e/protein kg)	Water usage (kl/protein kg)	Land usage (m ² /protein kg)
Livestock products	57 – 499 (min: chicken) (max: cattle)	34 – 112 (min: chicken) (max: cattle)	6 – 250 (min: chicken) (max: cattle)
 Plant-based	4 – 27 (min: peas) (max: wheat)	0.4 – 5 (min: soy) (max: wheat)	10 – 34 (min: soy) (max: peas)
 Cell-based	2.5 – 13.6	1	1 – 2
 Microbe-based (Hydrogen-oxidizing bacteria)	5	1	1

Water usage: Cited from <https://waterfootprint.org>

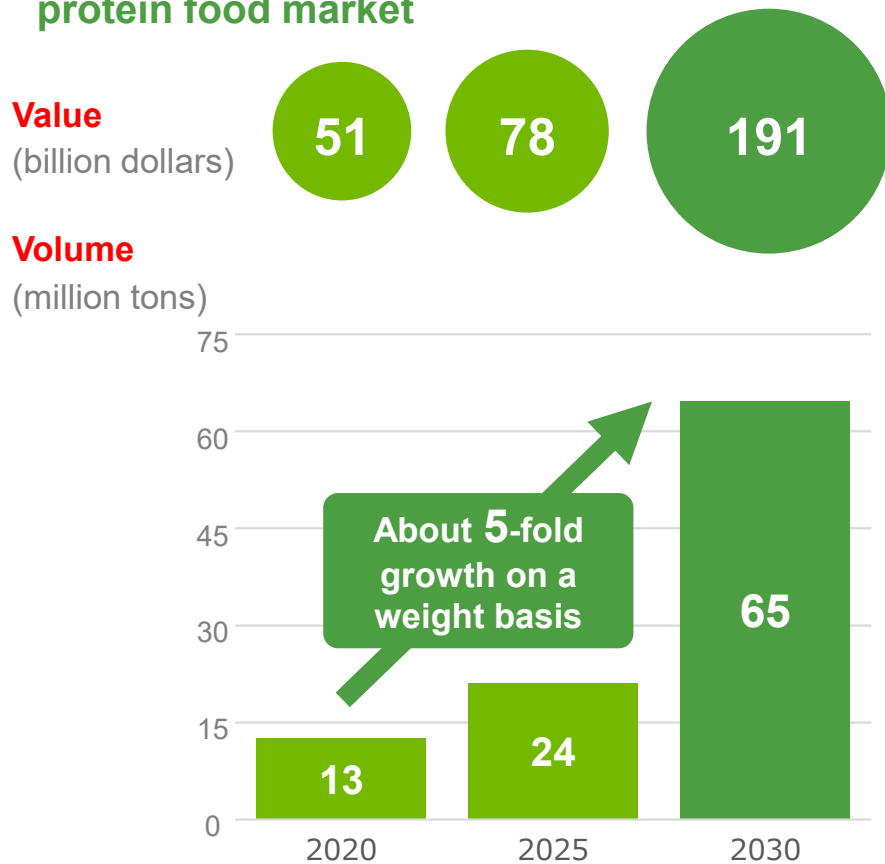
Cultured meat: Cited from "Technology Assessment of Cultured Meat" (The University of Tokyo) and "LCA of Cultivated Meat" (CE Delft)

Microbial protein: Cited from Solar Foods corporate materials; virtual nitrogen coefficient is from Ajinomoto Co. internal data

Alternative Protein Food Market and Its Growth Potential

The market for alternative protein foods (plant-based protein/cultured meat) has expanded in line with the growth in population, growth in demand for meat, and raising of consumers' awareness.

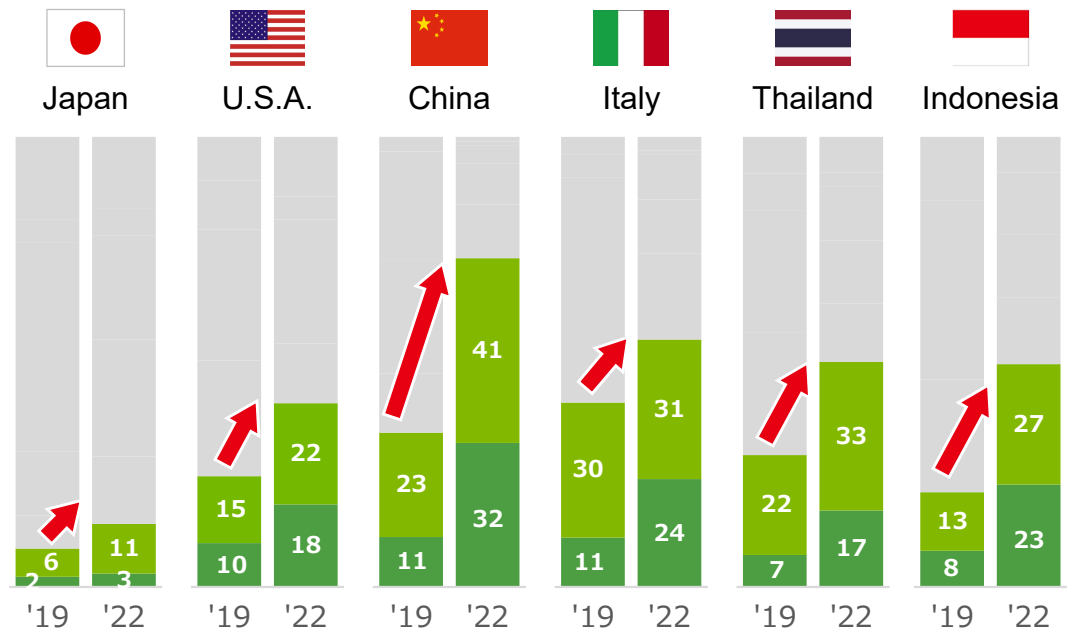
Forecast for growth of the alternative protein food market



Growing awareness of sustainability in the food sector

Awareness of sustainability concerning daily purchased foods (unit: %)

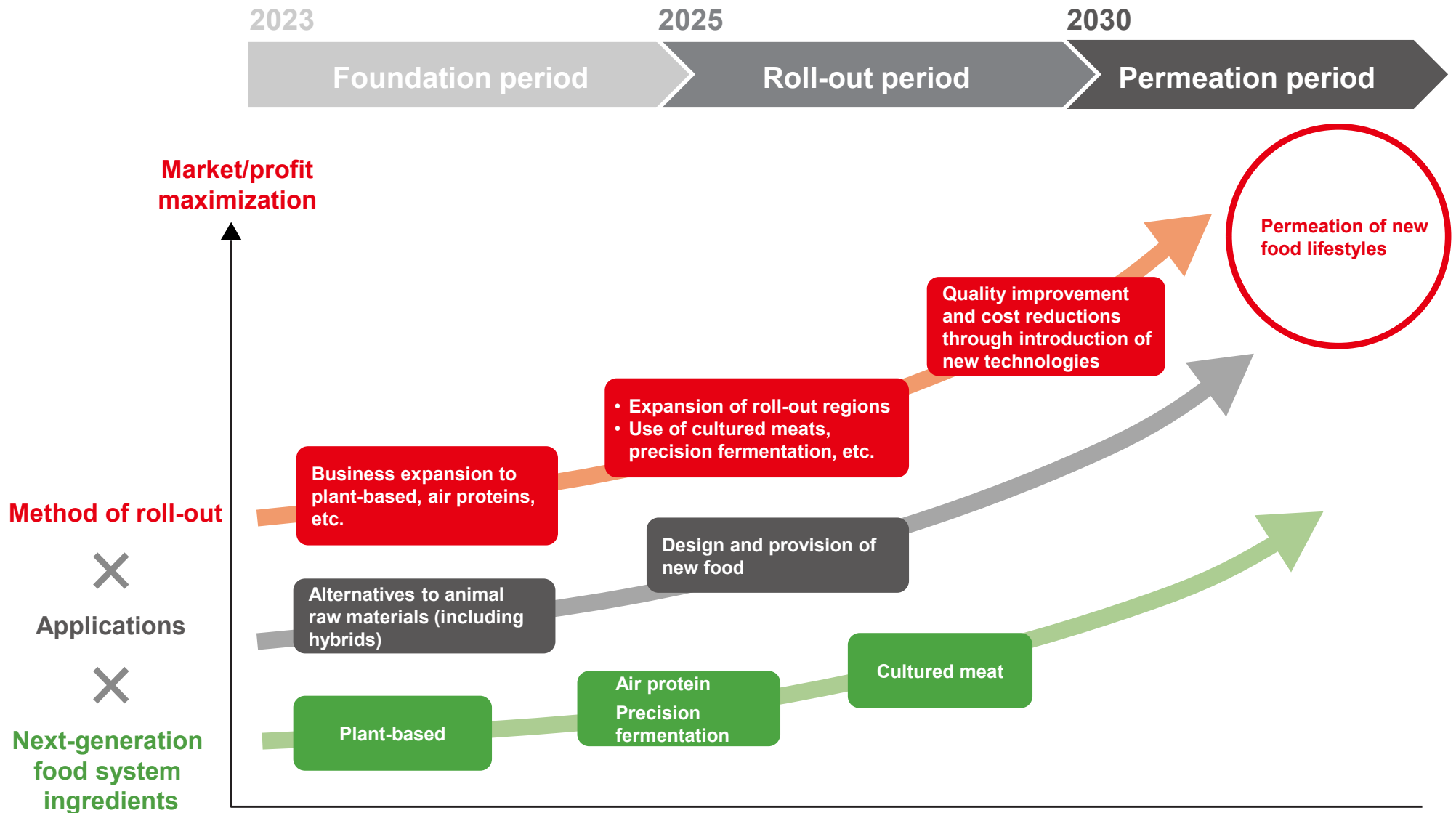
- Intentionally choose sustainable items even if expensive
- Intentionally choose, but only at the same price as general products
- Do not choose intentionally/Is not necessary



Note: Alternative protein includes all plants, cultures, and fermentation
Source: BCG report "Food for Thought: The Protein Transformation (2021)"

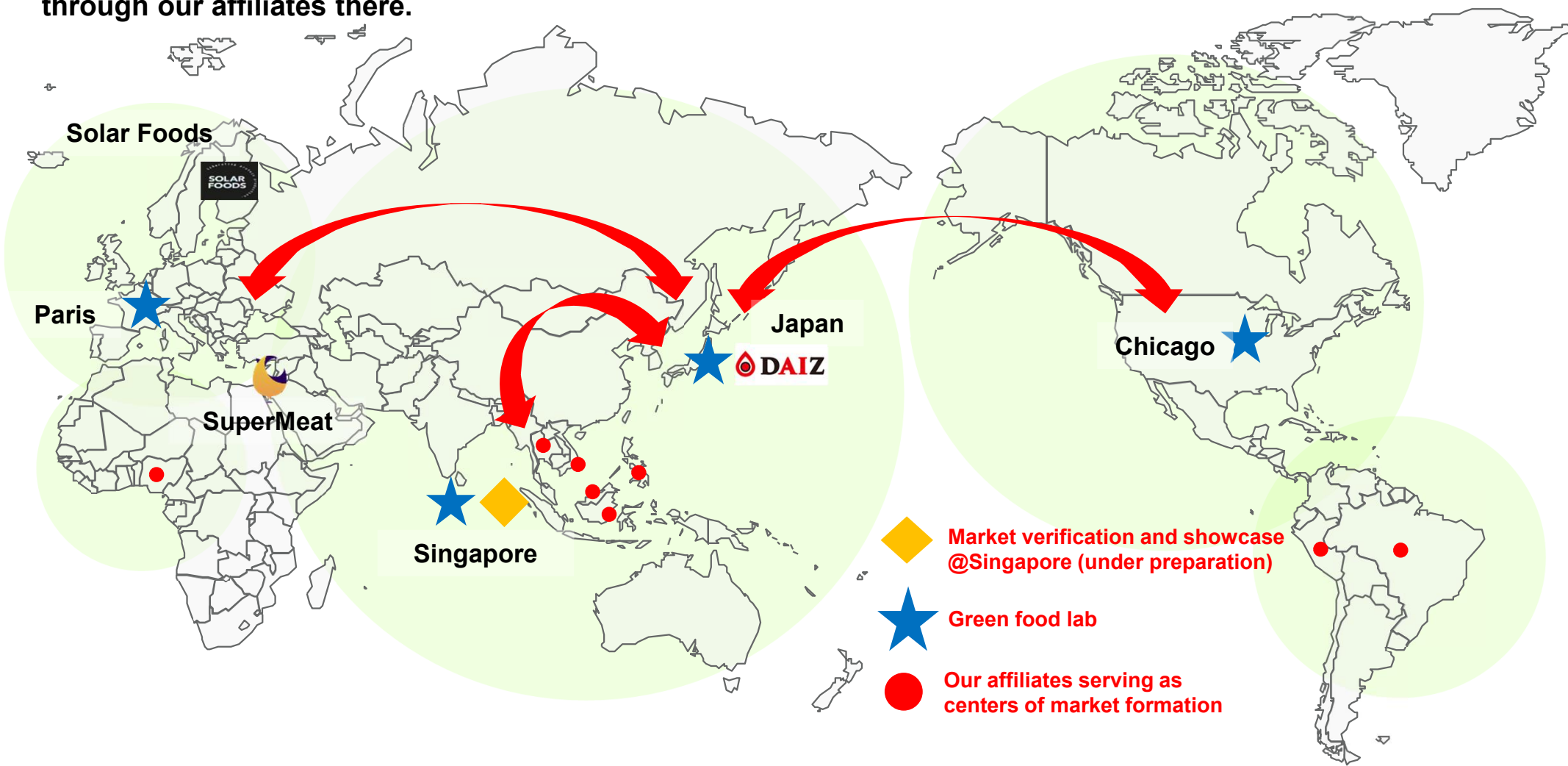
Source: SIGMAXYZ Food for Wellbeing survey (2022)

Roadmap for the Permeation of New Food Lifestyles



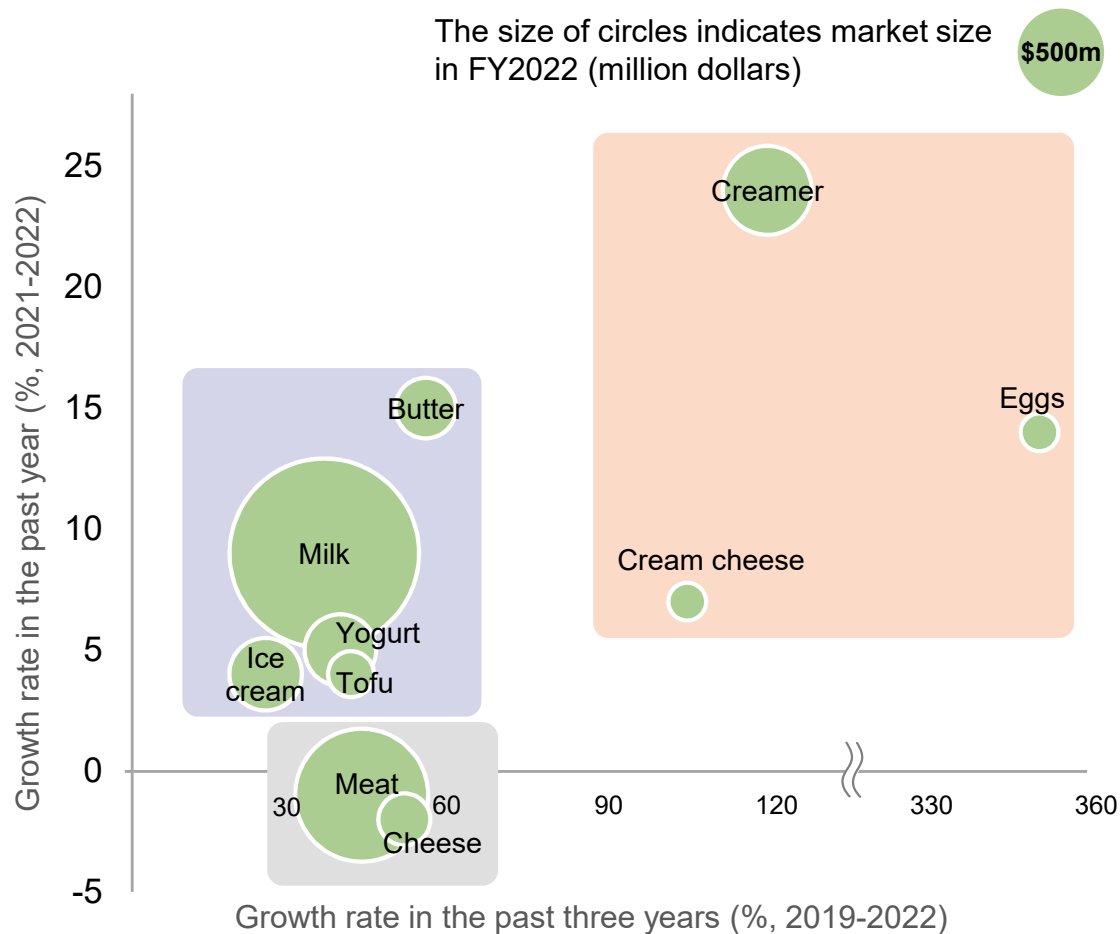
Development Hubs for Global Expansion

We will offer new products and communicate information in Singapore, where permission of green food is progressing and relatively high acceptance by consumers can be expected. At green food labs, we will propose new food lifestyles tailored to local food culture and will expand globally through our affiliates there.



Market Trends and Industry Trends Market trends in plant-based foods

The dairy category and eggs are growing steadily. In meat and cheese, which have led the market, growth has slowed down. Going forward, only companies that can provide delicious products at affordable prices will survive.



Categories with small market size and expected high growth potential
Eggs, creamer, etc.

Categories that continue to grow stably by appealing to health value and deliciousness
Dairy products such as milk and yogurt

Categories which have led the plant-based foods market, but for which growth is now slowing
Meat and cheese

Source: GFI, global/monetary basis

Proposal of Solutions for Plant-Based Foods

Improve the quality of plant-based foods and contribute to solving social issues through integrated solutions.

Integrated solutions through Plant Answer™

Work closely with customers and co-create optimal solutions and provide answers to their essential issues (= "Answer")



*Plant Answer™: a global integrated solution service brand

Examples of solutions



New product (with reduced off-flavor ingredients) will be launched in Q4 2023.

Value we provide	Aroma	Taste	Texture
Plant-based meat and fish 	Reduction of off-flavors from beans used as raw material (bean smell, green smell) Reproduction of the smell emitted by real meat when it is grilled	Creation of juiciness and fattiness , which are typically lacking	Creation of texture close to that of real meat
Plant-based milk 	Reduction of off-flavors from beans Reproduction of real cheese aroma	Creation of richness and freshness , which are typically lacking	Realization of physical properties close to those of real cheese (meltiness, stretchiness, etc.) Improvement of tongue feeling (roughness)

Proposal of Solutions for Plant-Based Foods

Seven-Eleven Japan Co., Ltd. has adopted plant-based meat made with our Deliciousness Technologies in the proprietary technology of DAIZ, Inc.

Development and manufacturing of ingredients



Development and manufacture of plant-based meat from sprouted beans



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Provision of technology and ingredients for designing "deliciousness" (e.g., masking of the smell of beans through original ingredients)



Development and sale of products

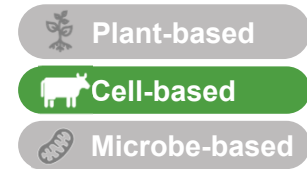
Seven-Eleven Japan Co., Ltd.

Product development

Sale at about 20,000 stores in Japan



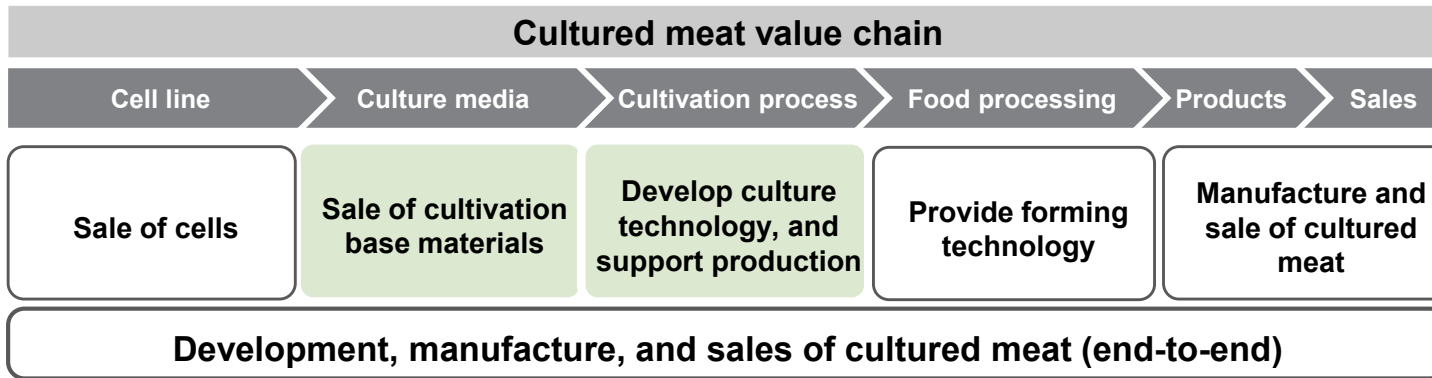
A World Created by Cultured Meat and assumptions of Business Model



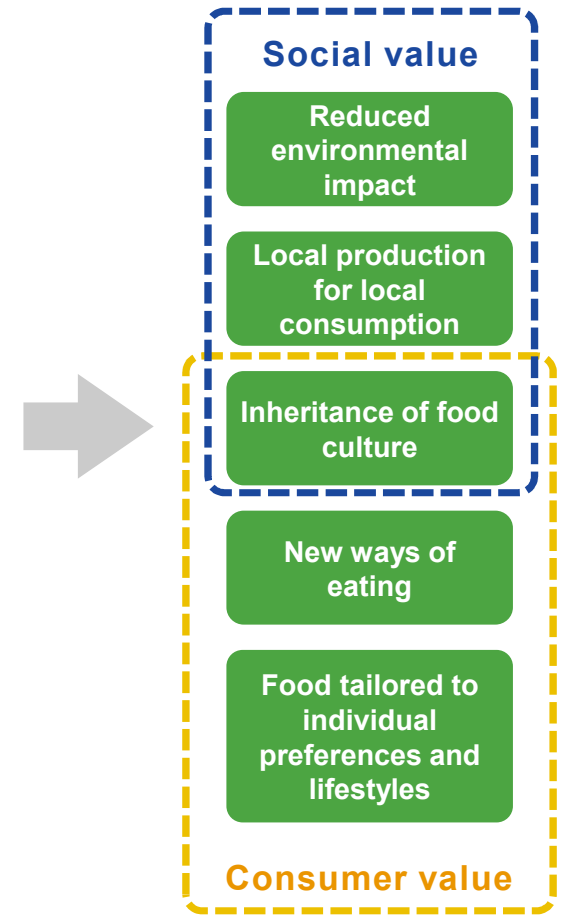
We will develop business at the critical points in the value chain where our strengths can be applied and will create social value and consumer value.

Business model (tentative)

 : Initiative underway



Provided value



Strengths of the Ajinomoto Group

Leading-edge bioscience and fine chemical technologies

Deliciousness Technologies



Amino acids
(Culture media components)



Corynex®
(Growth factor production)



StemFit®
(Regenerative medicine culture media)



Fermentation technology



Taste and texture improvement

Commercialization of Solein® , Air-Based Protein

Beginning in Singapore, we will use Solein® to develop sustainable, delicious, and healthy foods, and will propose a new food lifestyle that lets people contribute to the environment in their daily life.



What is Solein®?

A microbial protein produced from CO₂, developed by Finland-based Solar Foods.

New factory (Factory 01) will start operation in early 2024.

Low environmental impact

Lower water use, land use, and CO₂ emissions than plants

	Water use (L/kg of protein)	Land use (m ² /kg of protein)	CO ₂ emissions (kg/kg of protein)
Beef	600,000	200	200
Plants	100,000	20	5
Solein®	1,000	1	1

Varied processing characteristics

Applicable to wide-ranging uses



Egg alternatives (pasta)

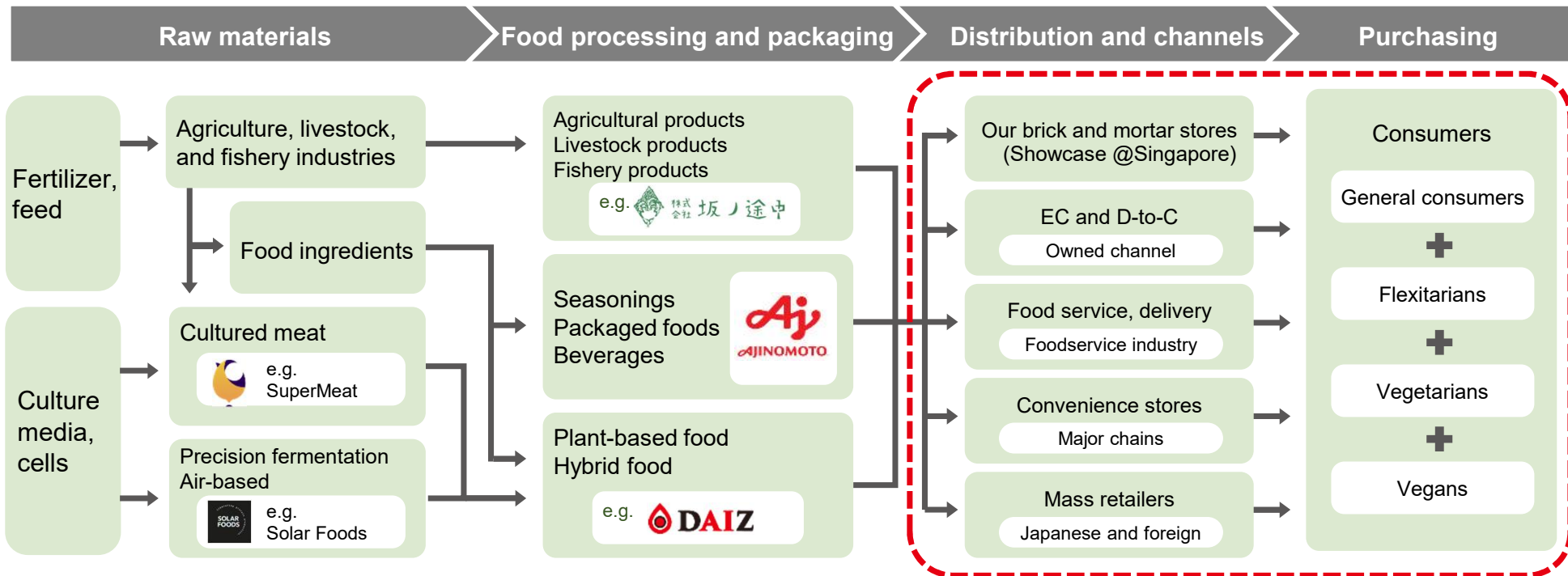
High nutritional value

Contains dietary fiber, iron, B vitamins, and a high level of protein (about 70%)

Initiative for the Permeation of New Food Lifestyles (“with Earth” Initiative)

It is important to encourage retailers and consumers with communicating new values and providing new experiences that are not merely “alternatives” in addition to materials and technology development.

Value chain



The logos above are organizations currently connected to our company

Related partners

Universities and research institutions

Banks and trading companies

Government ministries and agencies

Consultants

Relevant organizations and associations

Construction of mechanisms including co-creation structures within the industry and legislation and incentives (carbon credits, etc.)

Agro-Solution Business

Reduction of Environmental Impact in Agriculture Using Biostimulants

We will work toward greater agricultural efficiency and crop quality and reduction of environmental impact through biostimulants that leverage "AminoScience."








Biostimulants: materials that enhance the crop's efficiency of nutrient absorption, disease resistance, etc.

- Enhancement of yield per unit area of land
- Reduction of water use
- Enhancement of nutrients (proteins, vitamins, sugars, etc.)
- Reduction of chemical fertilizers and chemical pesticides
- Reduction of fuel use
- Making crops resistant to climate change (droughts, heat waves, cold damage)
- Enhancement of quality

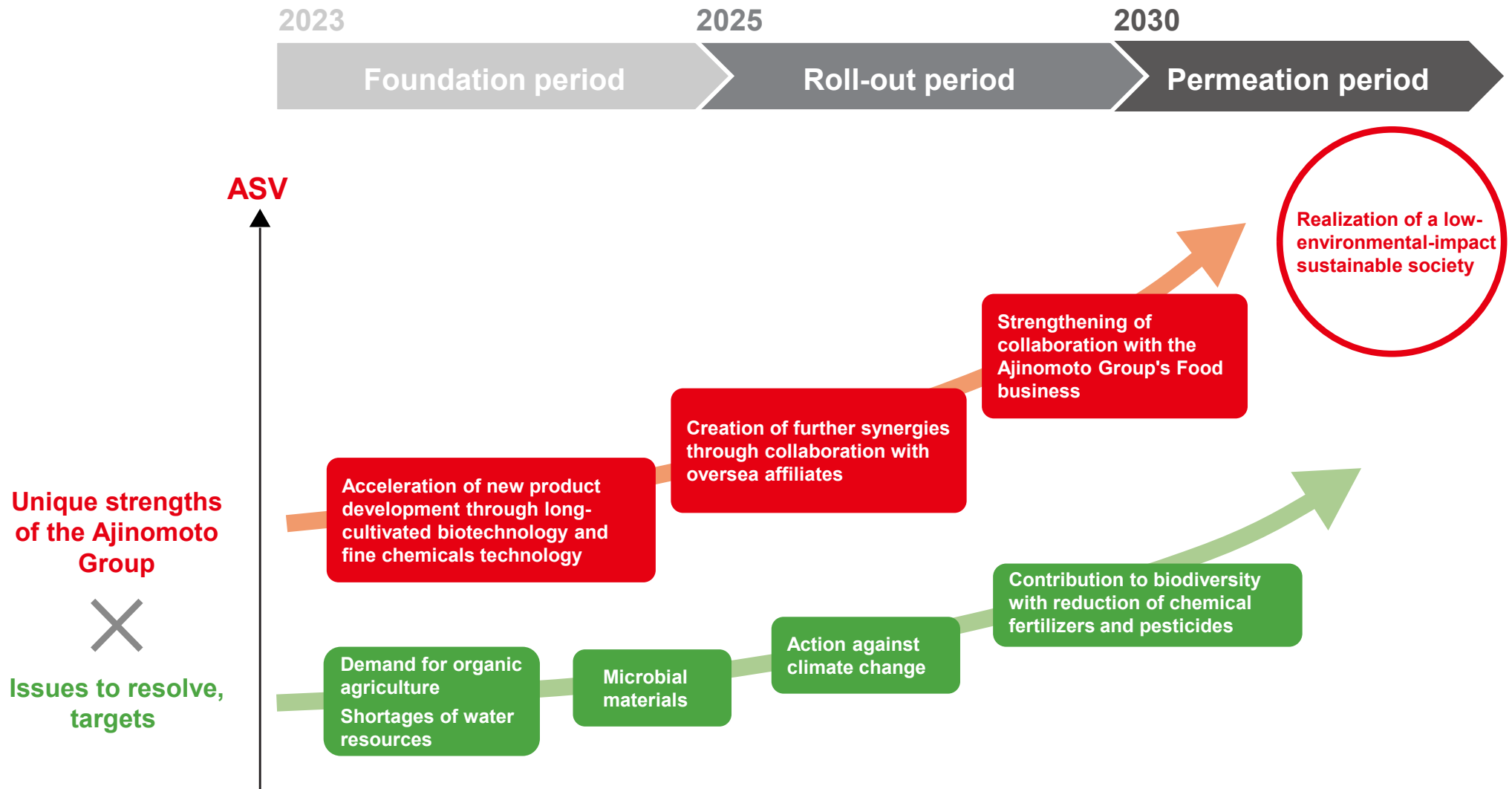
Expectations for greater agricultural efficiency and crop quality

Protein	Vitamins	Sugars
Up to +39%	Up to +20%	Up to +13.5%
TECAMIN MAX	AGRIFUL	TECAMIN MAX
↓	↓	↓
Wheat	Paprika	Corn

Expectations for reduction of the environmental impacts of agriculture

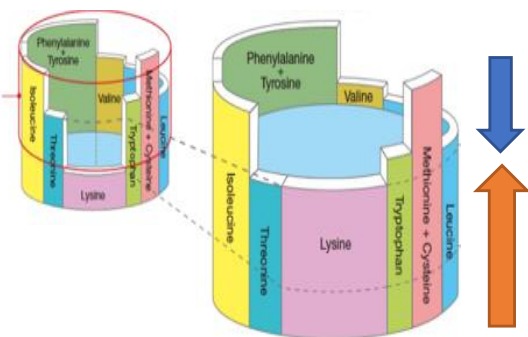
Crop yield	Efficiency of land use	Water use	Chemical fertilizers	Fuel use
Up to 23.7%	Up to x1.23	Up to -25%	Up to -25%	Up to -8%
				

Roadmap of the Agro-Solution Business (Biostimulant Business for Agriculture)

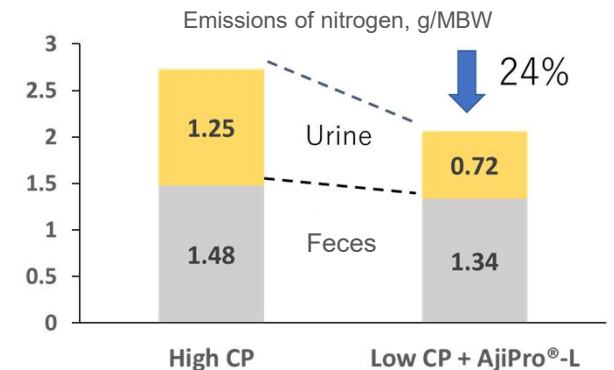


Reduction of Environmental Impacts in Dairy Farming by Using Amino Acid Balanced Feed

The use of *AjiPro*[®]-L in low-protein feed reduces nitrous oxide (N₂O) while maintaining milk production volume. We have begun studying partnerships with global dairy producers and meat producers.

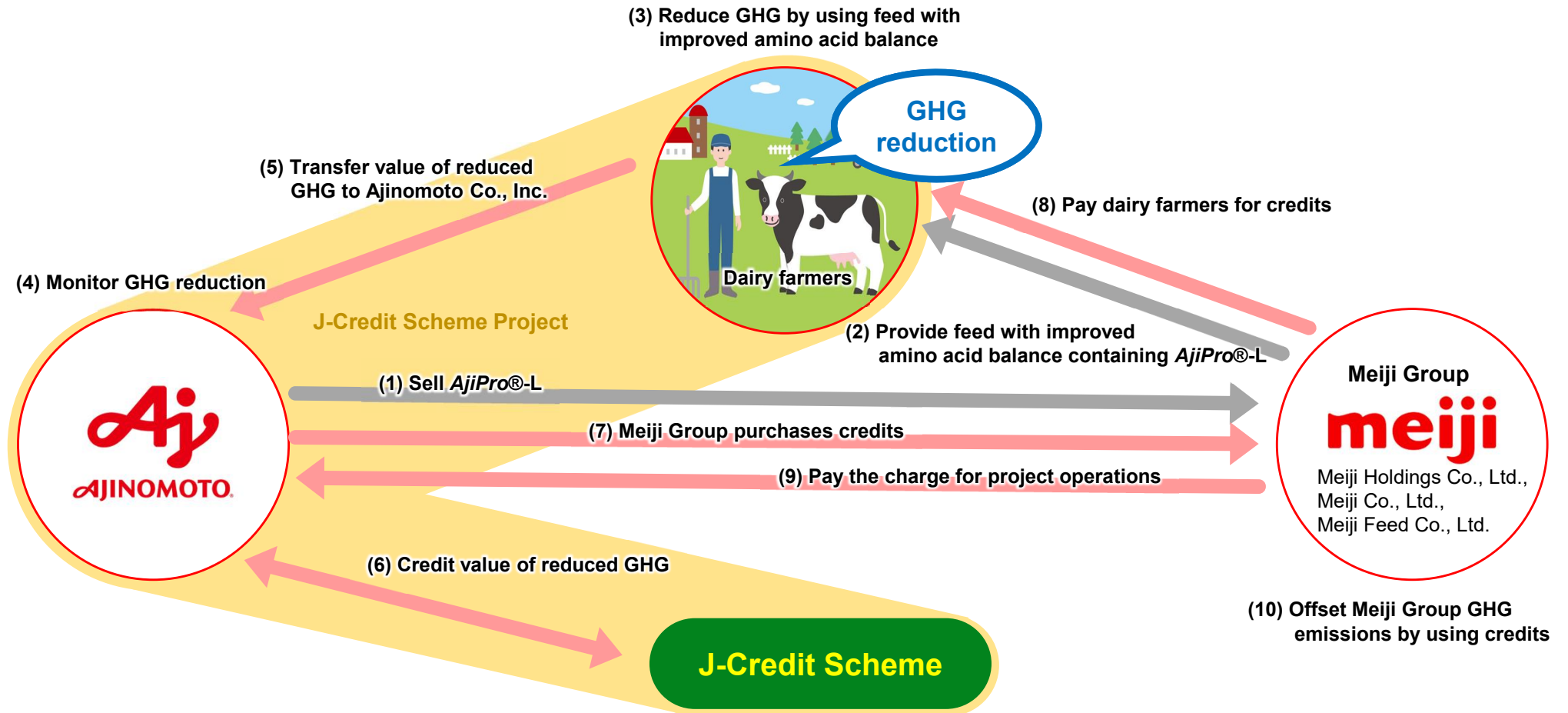


**Protein is used more efficiently
Reduced emissions of nitrogen compounds**



Business Model of GHG Reduction Using Amino Acid Balanced Feed

We have begun collaboration with the Meiji Group aimed at the realization of sustainable dairy farming. In the dairy industry, we are carrying out the first J-Credit Scheme project in Japan using amino acids.



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- **Forward-looking statements, such as business performance forecasts, made in these materials are based on management's estimates, assumptions and projections at the time of publication. A number of factors could cause actual results to differ materially from expectations.**
- **This material includes summary figures that have not been audited so the numbers may change.**
- **Amounts presented in these materials are rounded down.**
- **“AminoScience” is a trademark of Ajinomoto Co., Inc. registered in Japan.**