

**Voluntary Report** – Voluntary - Public Distribution

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**Report Name:** MAFF Finalizes Green Food System Strategy Report

**Country:** Japan

**Post:** Tokyo

**Report Category:** Agriculture in the News, Agricultural Situation, Climate Change/Global Warming/Food Security

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**Report Highlights:**

The Ministry of Agriculture, Forestry and Fisheries (MAFF) finalized a green food system strategy on May 12, 2021. The final version has minimal changes to the overall scope and key performance indicators from the interim report released in March. There is a new technological development and implementation road map for the next five years to accelerate the transition to sustainable food production and distribution.

## General Information

Following the March 29 release of the interim report, the Ministry of Agriculture, Forestry and Fisheries (MAFF) approved the establishment of “Measures for achievement of Decarbonization and Resilience with Innovation (MeaDRI)” or Green Food System Strategy on May 12, 2021. The final version has minimal changes from the interim report (see [JA2021-0048](#)), maintaining the 2050 targets (Table 1) and the road map for developing and implementing innovative technologies and production systems. The final version highlights the need to increase the public understanding of MeaDRI. MAFF considers public consensus, based on scientific knowledge, essential for implementing innovative technologies and production methods for securing food and environmental safety. The final version also has a new technological development and implementation road map for 2020 through 2025 (Table 2). The Government of Japan’s (GOJ) new target, set in April, to reduce greenhouse gas (GHG) emissions by 46 percent by 2030 from 2013 levels, prompted the establishment of the near-term road map.

The new road map includes several technologies that MAFF expects to be ready for practical applications in the next few years, such as diagnostic imaging for pests and diseases, weeding robots, electric-powered small-size agricultural machinery, and high pest and disease tolerant plant varieties. MAFF envisages innovative technologies and production methods will allow a variety of farming styles such as small-scale family farms and part-time farmers to benefit and will contribute to an overall strengthened production base. MAFF’s goal for MeaDRI is to achieve a balance between increased potential productivity of agriculture, forestry, fisheries, and food products and achieving sustainability in production.

Following the release of the interim report, MAFF invited comments from the public between March 30 and April 12. MAFF received 17,265 valid comments, of which 16,555 comments were about gene editing and genetic engineering technologies, followed by organic farming with 365 comments, and chemical pesticides and fertilizers with 161 comments. MAFF made no changes to the report because of the public comments. The comments on gene editing and genetic engineering technologies were mainly to address concerns over safety, environmental, and ecosystems impact. MeaDRI reference materials refer to the “development of genome editing crops” in “smart breeding systems,” but the main text of the MeaDRI report does not refer to gene editing or genetic engineering.

## Next Steps

MAFF will fund MeaDRI policy measures in the 2022 annual budget. MAFF intends to expand support payment programs in coordination with MeaDRI goals to facilitate the transition to sustainable food production and distribution. By 2030, MAFF will limit the eligibility of the support payment programs to producers who practice sustainable food and forestry production. MAFF will make necessary revisions to existing regulations or establish new regulations to incentivize farmers to accelerate the implementation of innovative technologies and production methods.

**Table 1. MeaDRI Key Performance Indicators and Implementation Measures**

Subject	Key Performance Indicators	Implementation Measures
<b>Food Loss</b>	50% reduction from the food industry by 2030 (from 2000 levels), and minimize the loss by 2050	Information and Communication Technology to better understand market demand; New ingredients; Development of new packaging.
<b>Food Production</b>	30% productivity increase by 2030 (from 2018 levels), and further increase by 2050	Increase or complete automation in food production with AI and robots.
<b>Food Ingredient Imports</b>	Food producers import sustainably produced ingredients by 2030	Government and private sectors promote changes in suppliers who supply ingredients in consideration of sustainability; Promote Environmental, Social, and Governance (ESG) investment.
<b>Food Distribution</b>	10% reduction in distribution costs for food and drink wholesalers, and further reduction by 2050	Streamline distribution systems, consolidate stock points, and promote shift away from carbon intensive transportation. Use of AI and robots for complete automation.
<b>Maximize Timber Carbon Storage</b>	Planting of elite tree seedlings to account for 30% of forests by 2030 and 90% by 2050; Establish high-rise wooden building technology by 2040	Establish construction technologies for high-rise wooden structures; Promote use of wood and wood biomass.
<b>Fish Catches</b>	Increase fish catch to 4.44 million tons by 2030 (equivalent to 2010 levels)	Improve research and assessment of fish resources and promote Total Allowable Catch and Individual Quotas.
<b>Sustainable Aquaculture</b>	Establish sustainable aquaculture system without imposing burden on natural resources by 2050	100% use of artificial seedlings and compound feed in aquaculture for Japanese eels and pacific blue fin tuna.
<b>Agricultural and Forestry Machinery and Vessels</b>	Establish electric and hydrogen power technologies for agricultural and forestry machinery and vessels by 2040	Develop electric/hydrogen powered machinery and vessels; Use of rechargeable batteries, fuel cells and decarbonized fuels.
<b>CO2 Emissions</b>	Zero carbon dioxide emissions from agriculture, forestry, and fisheries industries by 2050	Elimination of fossil fuels in greenhouses and agricultural and forestry machinery and vessels; Solar power generators; Energy-efficient horticultural facilities.

<b>Chemical Pesticides</b>	Develop new pesticides to replace Neonicotinoid pesticides by 2040; 50% risk-based reduction in application by 2050	Establishment of Integrated Pest Management System and smart pest control system; Development of low-risk pesticides, new biological pesticides, RNA interference pesticides, weeding robots, AI outbreak forecast, pest and disease tolerant varieties; Use of drone for precision spraying.
<b>Chemical Fertilizers</b>	30% reduction of chemical fertilizers made from imported materials and fossil fuels in application by 2050	Soil health analysis using AI; Improved fertilizer efficiency.
<b>Organic Agriculture</b>	Establish organic farming technologies for main crops by 2040 and increase organic farming to 1 million hectares which account for 25% of total arable land by 2050	Pest control system using lights and sounds; Improved disease resistance.
<b>Horticultural Facilities</b>	Complete elimination of fossil fuels in greenhouses by 2050	High-speed heat pumps; Efficient heat storage; Use of biomass and solar power for heat generation.

Source: MAFF

**Table 2. Technology Development and Implementation Themes between 2020 and 2025**

<p><b>1. De-imports, Decarbonization, Environmental Burden Mitigation in Materials and Energy Procurement</b></p> <p>(1) Village Energy Management System  (2) Development of new, high-performance materials using modified lignin and cellulose nanofiber  (3) Development of artificial seedling production technology for aquaculture  (4) Development of fish meal substitute  (5) Feed production using food waste and insects  (6) Development of feed for aquaculture using hydrogen bacteria  (7) Development of non-petroleum fiber using silkworm  (8) Development of technologies for recycling food waste, sludge and industrial waste into feed, fertilizer and fuel  (9) Development of high performance bio-plastic made from non-edible biomass materials  (10) Development of recycle-friendly fishing tools and equipment</p>
<p><b>2. Building a Sustainable Production System through Innovation</b></p> <p>(1) Development of smart agriculture  (2) Development of smart forestry  (3) Development of smart fisheries  (4) Reduction of chemical pesticide application  (5) Reduction of chemical fertilizer application  (6) Electrification and hydrogeneration of agriculture and forestry machinery and vessels  (7) CO2 zero emission greenhouses  (8) GHG emission reduction in livestock production  (9) Stable production of super plants with high CO2 absorption</p>

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| (10) Enforcement of plant variety development<br>(11) Technology development of biochar input in farmland soil<br>(12) Increase of high-rise wooden buildings and use of fast-growing trees and elite trees<br>(13) Technology development of carbon fixation in seaweed bed and tidal flat (Blue Carbon) |
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<b>3. Establishment of Sustainable Processing and Distribution System</b>
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| (1) Establishment of smart food chain<br>(2) Development of packing materials and technologies for long-term preservation and transportation<br>(3) Development of three-dimensional food printing system |
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<b>4. Promotion of Environment Friendly Sustainable Consumption and Food Education</b>
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| (1) Promotion of nutrient well-balanced Japanese diet |
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Source: MAFF

**Attachments:**

No Attachments.