FY2018

Summary of the Annual Report on Food, Agriculture and Rural Areas in Japan

May 2019
Ministry of Agriculture, Forestry and Fisheries

- Numbers in figures and tables are rounded in principle and may not add up to the total.
- Maps in this report may not necessarily indicate Japan's territories comprehensively.

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Special Topic 1

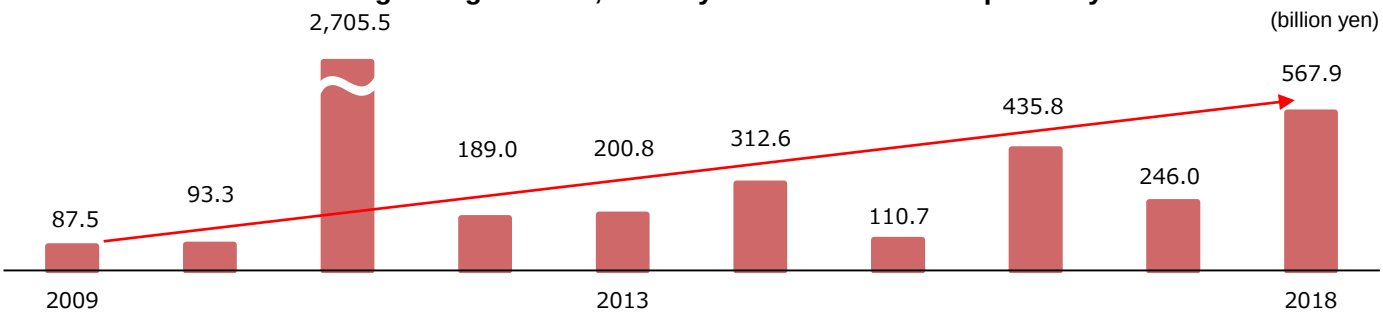
Restoration and Reconstruction from Frequent Natural Disasters in FY2018

- Great natural disasters caused heavy damage in Japan in 2018, including the Heavy Rain Event of July 2018, Typhoon No. 21, the Hokkaido Iburi Tobu Earthquake and Typhoon No. 24. Their damage to the agriculture, forestry and fisheries sector was the largest in the past 10 years excluding 2011 when the Great East Japan Earthquake inflicted 2,384.1 billion yen in damage to the sector.
- The Ministry of Agriculture, Forestry and Fisheries provided push-type food and drink support and human support to disaster-affected local governments. In order to prevent disasters from leading agriculture, forestry and fisheries business operators to leave their business, the ministry also decided on fine-tuned support measures more promptly than ever while hearing requests from disaster-affected people to allow these business operators to resume business as early as possible.
- In preparation for potential disasters, the ministry will intensively implement emergency measures in three years for preventing and reducing disasters and enhancing national resilience, provide thorough technical guidance for preventing damage to farm products and promote farmers' accession to agricultural insurance.

1. Damage to Agriculture, Forestry and Fisheries in Recent Years

➢ In recent years, damage to agriculture, forestry and fisheries followed an uptrend.

Damage to agriculture, forestry and fisheries in the past 10 years



Source: MAFF
Note: As of January 28, 2019

2. Responses to FY2018 Disasters

➢ Soon after the Heavy Rain Event of July 2018, the Hokkaido Iburi Tobu Earthquake and other disasters, the Ministry of Agriculture, Forestry and Fisheries set up a headquarters for emergency natural disaster countermeasures, headed by the MAFF Minister, to collect information and implement necessary countermeasures.

➢ In push-type support to send materials without waiting for requests from local governments soon after disasters, MAFF provided 1.08 million food and drink items on the Heavy Rain Event of July 2018 and 260,000 items on the Hokkaido Iburi Tobu Earthquake.

➢ To support surveys on damage to farmland and agricultural facilities, MAFF sent engineering officials of the central government as disaster relief support team members to local governments, including 2,327 person-days for 20 prefectures on the Heavy Rain Event of July 2018 and 1,065 person-days for Hokkaido on the Hokkaido Iburi Tobu Earthquake.

MAFF headquarters for emergency natural disaster measures (July 7)

Push-type food and drink support

Human support by disaster relief team members

Based on the improvement of procedures for accelerating extremely severe disaster designation as decided in December 2017, the government announced an expected extremely severe disaster designation seven days each after the July 2018 Torrential Rains and the Hokkaido Iburi Tobu Earthquake.

Extremely severe disaster designations for FY2017-2018

Fiscal year	Disaster name	Date	Extremely severe disaster designation		Advanced announcement	Cabinet decision	Announcement and enforcement
			Classification*1	Affected facilities	(Number of days after disaster)		
FY2017	Torrential Rains from Seasonal Rain Front, etc. (Northern Kyushu Torrential Rain)	June 7-July 27 (July 5-6)	Extremely severe disaster (national) Early local extremely severe disaster	Farmland/agricultural facilities, forest roads Agriculture-forestry-fisheries joint use facilities Public civil engineering facilities (5 municipalities)	July 21 (15 days)	August 8 (33 days)	August 10 (35 days)
	Typhoon No. 18	September 15-19	Extremely severe disaster (national) Early local extremely severe disaster	Farmland/agricultural facilities, forest roads Public civil engineering facilities (2 municipalities)	October 6 (17 days)	October 20 (31 days)	October 25 (36 days)
	Typhoon No. 21	October 21-23	Extremely severe disaster (national)	Farmland/agricultural facilities, forest roads Agriculture-forestry-fisheries joint use facilities	November 10 (18 days)	November 21 (29 days)	November 27 (35 days)
FY2018	Torrential Rains from Seasonal Rain Front, etc. (Heavy Rain Event of July 2018)	May 20-July 10 (June 28-July 8)	Extremely severe disaster (national)	Farmland/agricultural facilities, forest roads Agriculture-forestry-fisheries joint use facilities Public civil engineering facilities	July 15 (7 days)	July 24 (16 days)	July 27 (19 days)
	Typhoons No.19, 20, 21	August 20-September 5	Early local extremely severe disaster	Farmland/agricultural facilities, forest roads (6 municipalities) Agriculture-forestry-fisheries joint use facilities (1 municipality) Public civil engineering facilities (3 municipalities)	September 21 (16 days)	September 28 (23 days)	October 1 (26 days)
	Hokkaido Iburi Tobu Earthquake	September 6	Extremely severe disaster (national)	Farmland/agricultural facilities, forest roads Agriculture-forestry-fisheries joint use facilities Public civil engineering facilities (*Early local extremely severe disaster" as of September 13)	September 13* (7 days) September 21 (15 days)	September 28 (22 days)	October 1 (25 days)
	Typhoon No. 24*2	September 28-October 1	Extremely severe disaster (national) Early local extremely severe disaster	Farmland/agricultural facilities, forest roads Agriculture-forestry-fisheries joint use facilities Public civil engineering facilities (1 municipality)	November 15 (45 days)	November 30 (60 days)	December 5 (65 days)

Source: MAFF

Notes: *1. Extremely severe disasters (national) are designated for the whole of Japan. Among local extremely severe disasters that are designated on a municipality-by-municipality basis, early local extremely severe disasters are accompanied by estimated damage amounts that clearly exceed the designation standard. While local extremely severe disasters are usually designated at the end of each fiscal year, extremely severe disasters (national) and early local extremely severe disasters are designated promptly after the disasters occur.

*2. Typhoon No. 24 brought about small- and medium-scale damage amounts at various locations in Japan. The government took time to accumulate small damage amounts. When almost all damage amounts were fixed, their total exceeded the designation standard.

- The government compiled a life and business reconstruction support package to reconstruct life and business in areas affected by the Heavy Rain Event of July 2018, Typhoon No. 21 or the Hokkaido Iburi Tobu Earthquake and took budgetary measures required for restoration and reconstruction in these areas.
- MAFF promptly decided on support measures for damage related to agriculture, forestry and fisheries, based on local requests, etc.
- After deciding on support measures, MAFF opened briefings for local governments, agricultural cooperatives and other stakeholders to communicate these measures to the stakeholders.

Periods of time from disasters and decisions on support measures

Disaster name	Date	Decision on support measures	Period from disaster
Heavy Rain Event of July 2018	June 28-July 8, 2018.	July 16 (Revised on August 2)	8 days
Typhoon No 21, Hokkaido Iburi Tobu Earthquake	September 3-6, 2018	September 28	22 days
(Reference) 2017 Northern Kyushu Torrential Rain	July 5-6, 2017	August 8	33 days

Source: MAFF

Briefing on support measures (Sapporo)

3. Enhancing Restoration/Reconstruction Support

- In addition to quick mutual aid money payments, subsidization for replanting at disaster-affected orchards or tea plantations and other disaster restoration and reconstruction measures accumulated through past disasters, the government has taken fine-tuned support measures meeting the characteristics of disasters to enhance support.

Major additions to support measures

Disaster name	Major additional measures
Heavy Rain Event of July 2018	Subsidization for transportation of fruit products from disaster-affected orchards and protection of fruit trees there Subsidization for restoring broken pipelines
Hokkaido Iburi Tobu Earthquake	Subsidization for target prevention and control Subsidization for securing emergency power sources

Source: Excerpts from Annual Report on Food, Agriculture and Rural Areas in Japan FY2018

Transition of support measures

Support measures concerning Typhoon No. 18 (2013)

○Support measures

1 Eliminating interest on disaster-related loans
2 Subsidizing reconstruction/repair of agricultural greenhouses, shelves, etc.
3 Subsidizing replanting of fruit trees and tea plants

Support measures concerning typhoons in 2016 (2016)

○Support measures

1 Promoting disaster restoration projects
2 Accelerating mutual aid money and other payments
3 Special measures for disaster-related funds
4 Supporting reconstruction/repair of agricultural greenhouses, joint use facilities, etc.
5 Supporting resumption of farming
Addition (1) Subsidizing additional control measures, seed purchases, etc.
6 Supporting early restoration of farmland and farming facilities
Addition (1) Supporting initiatives to improve farming conditions and switch to more profitable products
7 Supporting forestry-related damage relief measures
8 Supporting fisheries-related damage relief measures

Support measures concerning Typhoon No. 24 (2018)

○Support measures

1 Promoting disaster restoration projects, etc.
Addition (1) Streamlining disaster assessment
2 Accelerating mutual aid money payments, etc.
3 Special measures for disaster-related funds
4 Supporting introduction of agricultural greenhouses, joint use facilities, etc.
Addition (1) Subsidizing greenhouse improvement
Addition (2) Arranging for early securement of greenhouse materials and builders
5 Supporting resumption of farming
6 Securing job opportunities for disaster-affected agriculture, forestry and fisheries business operators
7 Supporting early restoration of farmland and farming facilities
8 Supporting forestry-related damage relief measures
9 Supporting early restoration of fishing port facilities, etc.
10 Publicizing disaster-related waste disposal projects
11 Support using local funding measures

Source: MAFF

- The government streamlines disaster assessment with measures such as increases in damage estimate ceilings for desk assessment and the utilization of aerial photos, representative cross-section diagrams, etc. for preparing design documents attached to assessment design documents to reduce the workload on disaster-affected local governments and accelerate assessment. To support the preparation of massive assessment design documents at heavily damaged municipalities, the government dispatches engineering officials (emergency disaster relief support teams for agriculture and rural areas) to relevant municipalities and asks organizations subjected to disaster relief cooperation agreements with the government to cooperate in securing consultants.

- Disaster restoration projects use a pre-assessment construction (emergency construction) system for starting restoration construction even before disaster assessment to support the accelerated restoration of disaster-affected facilities if faster restoration secures the next cropping.

Establishment of disaster assessment accelerating rules and utilization of a pre-assessment construction system

Traditional measures

【Streamlining disaster assessment】

How to streamline disaster assessment was decided on for each facility according to damage specifics when a large-scale disaster occurred.
→ Applying assessment streamlining measures about 40 days after a disaster

【Pre-assessment construction system】

・Number of cases for pre-assessment construction: 84 cases in 2014, 138 cases in 2015, 328 cases in 2016, 100 cases in 2017

Accelerating restoration to reduce workload on disaster-affected local governments

Changes in 2018

【Streamlining disaster assessment】

Rules were established in January 2017 for streamlining large-scale disaster assessment
→ Applying assessment streamlining measures minimum 12 days after a disaster (Heavy Rain Event of July 2018)

【Example for farmland and agricultural facilities in 2017】
・An increase in the damage estimate ceiling for desk assessment led the percentage share of cases for desk assessment to rise from 56% (before the increase) to 89% (after the increase).

【Pre-assessment construction system】

In 2018, the government instructed the unification of application forms and the proactive utilization of the pre-assessment construction system.
・Number of cases for pre-assessment construction: 405 cases in 2018

Source: MAFF

4. Restoration from FY 2018 disasters

- At citrus orchards damaged heavily by landslides due to the Heavy Rain Event of July 2018 in areas such as Uwajima City in Ehime Prefecture, agricultural monorail restoration made progress. Emergency water pipeline restoration and other measures were implemented to tentatively resume irrigation for 565 ha out of 978 ha in disaster-affected orchards. Full-fledged restoration was starting after disaster assessment was completed by the end of January 2019. A group of young farmers founded a company for orchard reconstruction.

- At a joint-use facility of the Toyohashi Agricultural Cooperative Association where shutters, etc. were destroyed by Typhoon No. 24, the pre-assessment construction system was used to replace shutters to prevent cabbage shipments from being affected.

- The Hokkaido Iburi Tobu Earthquake damaged farmland totaling 140 ha through landslides. Restoration construction was starting after disaster assessment was completed by the end of January 2019. For 2019 cropping in the state-run Yufutsu Tobu district where water pipelines were devastated, existing facilities are expected to be used to secure irrigation for 2,843 ha of land subject to state-run irrigation excluding 55 ha of landslide-affected farmland and 41 ha for construction.

Orange juice sold by Tamatsu Kankitsu Club founded for orchard reconstruction (Uwajima, Ehime Prefecture)

Toyohashi Agricultural Cooperative Association's joint use facility just after being hit by the disaster

After an on-the-spot inspection, the MAFF Minister attends an opinion exchange (Atsuma Town, Hokkaido)

5. 3-year emergency measures package for preventing/reducing disasters and enhancing national resilience, etc.

- Given the growing frequency and severity of earthquakes and other natural disasters in recent years, farmers' promotion of initiatives to prepare for disasters is important in addition to the government's disaster prevention/reduction and national resilience enhancement initiatives to protect citizens' lives and assets.

- Based on an emergency inspection of critical infrastructure, the past inspection of reservoirs, etc., MAFF will intensively implement emergency hard and soft measures in three years to maintain functions of critical infrastructure for (1) preventing disasters and (2) supporting the national economy and livelihood. Infrastructure subject to these measures includes agriculture irrigation facilities, reservoirs, wholesale markets, livestock farming facilities and agricultural greenhouses.

- In addition, MAFF will proactively implement disaster preparation measures such as the enhancement of technical guidance for preventing typhoon and snowfall damage and the promotion of farmers' accession to horticulture facility mutual aid and revenue insurance.

Examples of technical guidance for damage prevention (Farmers' preparations for disasters)

- **Removing or cutting agricultural greenhouse covering materials in preparation for typhoons and snowfalls (relevant measures approved by mutual aid societies, etc. are subject to compensation).**
- **Controlling drawdowns and low water levels to secure reservoir dam bodies' safety**
- **Implementing anti-pest measures based on pest forecasting information released by prefectural pest control offices**

Source: MAFF

Supporting agricultural greenhouse reinforcement

Implementing emergency measures including reservoir refurbishment

Special Topic 2

Progressing Introduction of Smart Agriculture Technologies

- While farming labor shortages are growing more serious due to a rapid decline in the number of farmers in Japan, the global food market is expanding rapidly. In view of various global needs, Japan should develop agriculture into a vigorous industry.
- To resolve such challenge, Japan is making progress in the introduction of smart agriculture technologies for productivity improvement, farming business size expansion, product quality improvement, skill transfers to new farmers and advanced agriculture business.
- While promoting technology development for labor-intensive fruit and vegetable production and combining facility sharing and leasing and other cost-cutting initiatives, Japan should introduce smart agriculture technologies tailored to workplace conditions, irrespective of business size.

1. Smart agriculture promotion and potential

Cutting-edge technologies to automate work and reduce workload

- Full-fledged sales of self-driving tractors have started. They are expected to break through business size limitations on land-extensive farming and help maintain agricultural production in labor-short regions.
- Sales have started of automatic water control systems that remotely and automatically supply and drain water for paddy fields. They can substantially save water control labor and reduce the risk of falling income through optimum water control.
- Sales have also started of remotely controlled mowing machines available even for hilly and mountainous areas. They can be used for slopes, contributing to reducing workload substantially and securing safety. Furthermore, lower-priced unmanned grass cutters with limited functions are under development.

Self-driving tractors

Self-driving rice transplanting machine

<Case study> Utilizing self-driving tractors (Hokkaido)

- In Moseushi Town, Hokkaido, self-driving tractors are utilized at farming partitions expanded under an infrastructure development project to improve leveling accuracy and streamline soil pudding.

GPS-using leveling machine

Remotely controlled mowing machine

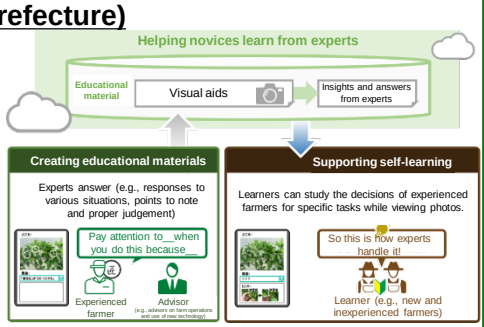
Power assist suit

Realizing agriculture easy for anyone to tackle

- Tractors, rice transplanting machines and combines with assist facilities to achieve the same work accuracy and speed as those achieved by skilled farmers have been put on sale.
- Systems have been commercialized for transforming advanced skills into digital content used for new farmers to promptly learn knowhow.

<Case study > Mie Nanki Agricultural Cooperative Association (Mie Prefecture)

- Fruit thinning knowhow, irrigation timing and other knowhow for mandarin orange cultivation have been transformed into data to allow unskilled persons to promptly acquire average skills.



Conceptual diagram of a learning system

Utilizing data and sensing technologies to improve productivity and quality

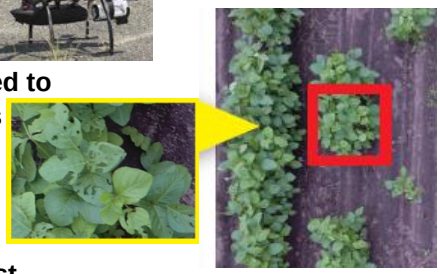
- Pictures taken by drones are analyzed to identify pest locations, allowing crop-dusting and additional fertilization operations to be done in a pinpoint manner to cut materials costs and realize sustainable agriculture. This technology is useful even in hilly farming areas.

- Progress has been made in the development of a technology utilizing information and communications and artificial intelligence technologies to automatically control temperatures and carbon dioxide density levels and tomato-harvesting robots using artificial intelligence to determine maturity levels of tomatoes based image data.

An automatic harvesting robot uses AI to determine maturity levels of tomatoes

① Taking pictures of a soybean field as a whole

②Pictures are analyzed to identify pest locations



③ Crop-dusting at pest locations

Pinpoint crop-dusting using a drone

<Case study > Takahiko Agro Business (Oita Prefecture)

- Takahiko Agro Business has introduced an agricultural heat exchanging system using geothermal heat for substantially cutting fuel costs and an environmental control system combining carbon dioxide provision and fine fog systems to realize year-around paprika shipments.

Paprika cultivation greenhouse

Plane view of large-scale greenhouse

Building Agricultural Data Collaboration Platform

- Agricultural Data Collaboration Platform (WAGRI) was launched in April 2019 for data collaboration, sharing and provision. In addition, from the viewpoint of improving environment of the data circulation, a Guideline on Data Contract in Agriculture has been developed. It is anticipated that they will help accelerate the appropriate utilization and collection of production knowhow and other data and create new services.

- Furthermore, a smart food chain system will be developed by FY2022 to enable mutual data utilization for the production, processing, distribution and consumption sectors. The system will promote a transition to market-in type agriculture adapting production and sales to diversified demand, reduction of food losses and optimization of logistics through optimum good collection and shipment.

2. Smart agriculture diffusion acceleration initiatives

- In November 2018, the number of quasi-zenith satellites increased to four, allowing positioning data to be provided more stably. Regulations have been revised on agricultural drones. These and other developments represent progress in paving the way for the diffusion of smart agriculture.

- Aiming for realization of almost all professional farmers utilizing data for agriculture by 2025, MAFF is implementing various initiatives including smart agriculture promotion forums for introducing case studies and matching events for farmers, private businesses and research organizations.

Special Topic 3

Growing Agriculture-Welfare Collaboration

- In recent years, Japan has seen growing “agriculture-welfare collaboration” initiatives for the agriculture and welfare sectors to collaborate in helping persons with disabilities, needy persons, elderly persons and others to find agricultural and other jobs.
- Agriculture-welfare collaboration encourages persons with disabilities and others to create self-confidence and motivation and participate in society through active performances in agriculture or processing and sale of agricultural products.
- Agriculture-welfare collaboration is expected to give the agriculture sector opportunities to secure labor and revise production processes and work systems to streamline production and produce quality farm products.

1. Growing agriculture-welfare collaboration in agricultural workplaces

➢ Growing agriculture-welfare collaboration takes various forms including farmers’ employment of persons with disabilities, continuous employment support centers’ participation in agriculture and private companies’ special subsidiaries employing persons with disabilities for farm work under contract.

<Case study> Kyomaru-en Co. (Shizuoka Prefecture) – A farm business operator employing persons with disabilities directly

➢ Kyomaru-en Co. in Hamamatsu City is engaged in hydroponic culture to produce mitsuba (Japanese wild parsley), qing-geng-cai and young green onion shoots with 100 employees including 25 persons with disabilities.

➢ Through GAP (good agricultural practices) activities, the company has classified work into specific steps and standardized each step, allowing persons with disabilities to work accurately and efficiently to improve the farm’s productivity and product quality.

➢ The company won a GAP Award 2018 for its activities.

Kyomaru-en employees

<Case study> Social Welfare Corporation Cocoron (Fukushima Prefecture) – A continuous employment support center participating in agriculture

➢ Izumizaki Village’s Social Welfare Corporation Cocoron launched genboku shiitake mushroom cultivation and the development and sales of miso soybean paste and pickles in 2004 and opened a farm stand and a café in 2006.

➢ The corporation deepened relations with local communities through sales at the farm stand before launching temporary staffing services for outside farms in 2008.

➢ In 2010, the corporation opened its own farm. Since December 2016, it has operated farming business as a certified farmer.

“Cocoroya” café for direct sales

<Case study> Matsumoto Highland Agricultural Cooperative Association (Nagano Prefecture) – An agricultural cooperative association initiative

➢ The Matsumoto Highland Agricultural Cooperative Association launched full-fledged matching services between farmers and continuous employment support centers in FY2018.

➢ In FY2017, the association’s youth group took the initiative in implementing a model project, setting a work menu and prices. It has based payments on work volume, making it easier for farmers to request labor services.

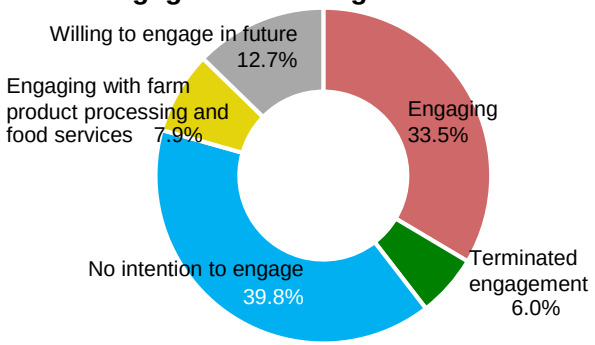
➢ The association matches between farmers plagued with labor shortages and job-seeking persons with disabilities, promoting agriculture based on mutual cooperation and regional revitalization.

Briefing on harvesting of tomatoes for processing

2. Current status of agriculture-welfare collaboration

- According to a survey by NPO Japan SELP Center, 33.5% of continuous employment support centers, etc. engage with agriculture.
- In recent years, a rising number of companies have employed persons with disabilities in the agricultural sector from the viewpoint of corporate social responsibility.
- Average labor charges or wages at continuous employment support centers are still low. In some cases, these centers raised labor charges or wages by expanding into agriculture.

Continuous employment support centers' engagement with agriculture

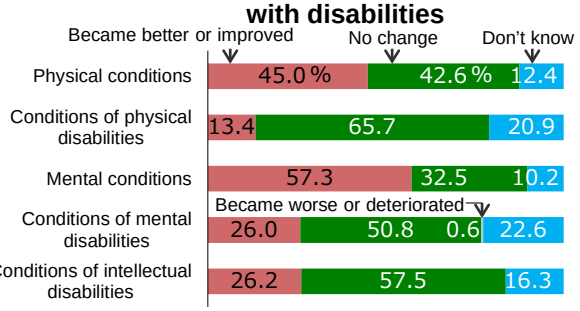


Source: NPO Japan SELP Center "Research Report on Agriculture-Welfare Collaboration" (Published in March 2014)

<Column> Favorable impacts of agriculture-welfare collaboration on persons with disabilities and farmers

- According to a questionnaire survey of continuous employment support centers, etc., 45% of these centers answered that physical conditions of persons with disabilities became better or improved through farming work. Furthermore, 57% answered that mental conditions of these persons became better or improved.
- According to a questionnaire survey of farmers, etc., 57% of respondents answered that they deepened understanding about persons with disabilities through agriculture-welfare collaboration. Such collaboration allowed 47% to afford to expand into new operations.

Farm work's impacts on persons with disabilities



Source: NPO Japan SELP Center "Research Report on Agriculture-Welfare Collaboration" (Published in March 2014)

3. Promoting agriculture-welfare collaboration

- The Ministry of Agriculture, Forestry and Fisheries cooperates with the Ministry of Health, Labour and Welfare in opening marché events and developing facilities to promote agriculture-welfare collaboration.
- MAFF enforced the regulations of the Japanese Agricultural Standards for Foods produced with the participation of persons with disabilities (called Nofuku JAS) in March 2019, to certify the agricultural and livestock products produced through proactive engagement by persons with disabilities.
- A Japan agriculture-welfare collaboration association founded in November 2018 implements campaigns to diffuse agriculture-welfare collaboration products with a view to the 2020 Tokyo Olympics/Paralympics.
- A Japan agriculture-welfare collaboration network announced a declaration in July 2018 vowing to collaborate with private sector companies in developing agriculture-welfare collaboration products.
- The employment support center of the Ministry of Justice supports the independence of former prisoners through agriculture, making achievements in preventing recidivism.

Implementation of agriculture-welfare collaboration measures

Source: MAFF

Notes: 1) The prefecture-by-prefecture numbers are of districts having utilized rural area promotion subsidies (agriculture-welfare collaboration measures), etc.
2) The total number of such districts stood at 91 from FY2015 to FY2018.

Developing a welfare farm (hydroponic culture)

Auxiliary facilities: rest stations, sanitary accommodations (restrooms, washing places), farm equipment hangars

Topic 1 Expanding Agricultural Products and Food Exports

- Japan's agricultural, forestry and fisheries products and food exports in 2018 hit a record high. The Ministry of Agriculture, Forestry and Fisheries makes "all Japan" efforts to achieve the target of 1 trillion yen in such exports in 2019 and promotes initiatives to support agriculture, forestry and fisheries, and food business operators ambitious to expand exports.
- Toward expanding its share of the global food market which is expected to grow, MAFF gives priority to fast-growing Asian countries and European and American markets with great purchasing power.

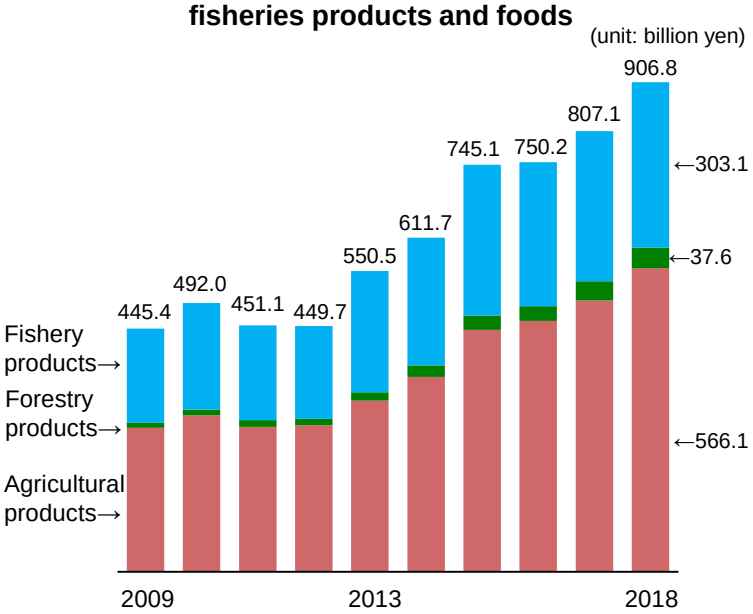
Agricultural, forestry and fisheries products and food exports hit a record high for the sixth straight year

- Japan's agricultural, forestry and fisheries products and food exports in 2018 increased by 12.4% or 99.7 billion yen from the previous year to 906.8 billion yen for the sixth straight annual growth.
- Major products recording rapid growth in 2018 included hen eggs (up 49.4% from the previous year), sweet potatoes (up 42.0%), strawberries (up 40.7%), beef (up 29.1%) and apples (up 27.6%). They grew on the strength of the growing popularity of Japanese food.

  Particularly, promotion emphasizing the quality of Japanese eggs eaten raw and other efforts helped to increase demand in export destinations.
- The largest export destination in 2018 was Hong Kong (up 12.7% from the previous year), followed by China (up 32.8%) and the United States (up 5.5%).

  Exports to China posted substantial growth, with China replacing the United States as the second largest export destination for these Japanese products.

Export of agricultural, forestry and fisheries products and foods

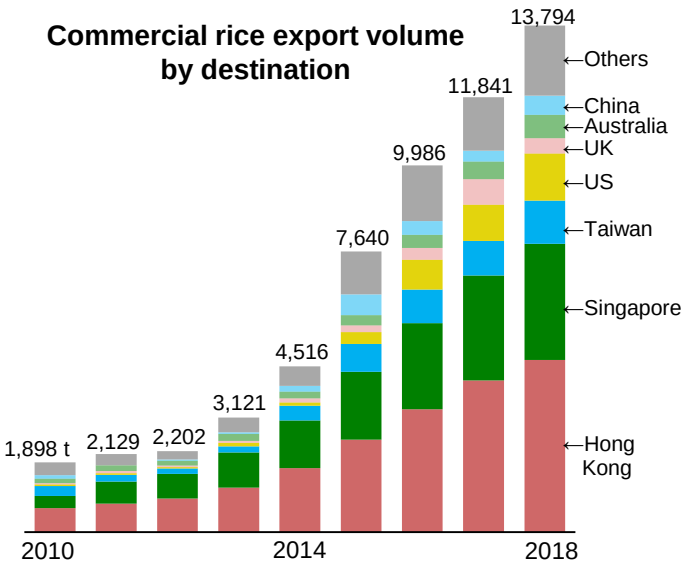


Source: Prepared by MAFF, based on MOF, Trade Statistics

Polished rice exports to China are expected to expand due mainly to additional rice polishing plants and fumigation warehouses

- Rice exports in 2018 increased by 16.5% or 2,000 tons from the previous year to 14,000 tons. Particularly, rice exports to China expanded by 75.8% or 226 tons to 524 tons.
- For polished Japanese rice exports to China, two rice polishing plants and five fumigation warehouses were added in May 2018.
- Rice exports to China are expected to grow on China's lifting of a ban on rice imports from Niigata Prefecture.

Commercial rice export volume by destination



Source: Prepared by MAFF, based on MOF, Trade Statistics
Note: The government's food aid is excluded.

Initiatives for uniting government and private sectors to promote exports

- To develop an “all Japan” export promotion setup, MAFF considers addressing sectoral and cross-sectoral challenges, and product-by-product export promotion organizations, the Japan External Trade Organization (JETRO), the Japan Food Product Overseas Promotion Center (JFOODO)* and relevant government ministries cooperate in promoting initiatives to expand exports.

  *JFOODO brands and promotes agricultural, forestry and fisheries products and food and supports exporters.

- MAFF resolves export impediments to pave the way for expanding exports and promotes Japanese food and culture overseas.
- MAFF demonstrates cardboard packaging materials and loading methods to prevent product losses during transportation.

Past initiatives to promote agriculture, forestry and fisheries products and food exports

Month/year	Initiatives
June 2013	Aiming to expand agriculture, forestry and fisheries products and food exports to 1 trillion yen by 2020. *In 2016, the target year was moved up to 2019.
August	Developing the export promotion strategy of agriculture, forestry, fisheries and food products
December	Washoku (traditional dietary cultures of the Japanese) inducted into UNESCO's Cultural Heritage list.
December 2015	Stationing officials in charge of supporting Japanese companies at 58 diplomatic establishments
May 2016	Compiling an export capacity enhancement strategy for agriculture, forestry and fisheries
April 2017	JFOODO established

Source: MAFF

JFOODO’s “All Japan” promotion

- In December 2017, JFOODO decided on a promotion strategy for seven products: Wagyu Japanese beef, seafood, Japanese tea, rice flour, sake rice wine, Japanese wine and craft beer.
- JFOODO conducted a promotion campaign titled “Japanese wagyu coming to Taiwan” in response to the resumption of wagyu exports to Taiwan.
- JFOODO implemented digital measures including videos and websites for promoting Japanese tea mainly for young U.S. generations interested in health functions and Japanese culture-based mindfulness of Japanese tea.

Newspaper ad

Station yard ad

Japanese tea campaign logo mark and ads

Community site opened for agriculture, forestry and fisheries, and food business operators ambitious to expand exports

- In August 2018, MAFF opened a community site for the GFP*, a new project for exporting agriculture, forestry and fisheries, and food products to find business partners for negotiations.

  *Global Farmers/Fishermen/Foresters/Food Manufacturers Project

- At the end of FY2018, 1,120 companies had been registered at the site. Export diagnostics is conducted at 341 locations (including 140 visit diagnosis locations).

GFP logo mark and three export-supporting initiatives

GFP

Global Farmers/Fishermen /Foresters/Food Manufacturers Project

Topic 2 Utilizing standards, certification and intellectual properties

- Japan's agriculture, forestry and fisheries, and food products, while having some brand power, must develop their competitiveness against foreign products and be differentiated from them.
- The JAS (Japanese Agricultural Standards) and the plant variety protection system, as well as the GAP (Good Agricultural Practices), HACCP (Hazard Analysis and Critical Control Point), GI (Graphical Indication) Protection and other standard/certification and intellectual property systems should be utilized adequately to enhance competitiveness in the global market.

GAP (Good Agricultural Practices)

- GAP are for farmers to check and improve their management activities in the agricultural production process from the viewpoints of food safety, environmental conservation, worker safety, and others.

  Farmers can acquire GAP certification through third-party audit.

- MAFF supports farmers' GAP activities and explores consumers' interest in GAP through such measures as the establishment of the GAP-info website.

- ASIAGAP, a Japan-originated GAP certification program developed by the Japan GAP Foundation, achieved GFSI* recognition in October 2018.

  * Global Food Safety Initiative: an international organization to improve food safety

Number of GAP-certified establishments

	Agricultural products		
Japan's total (establishments)	GLOBALG.A.P.	ASIAGAP	JGAP
	631	1,415	2,759

Source: Prepared by MAFF based on data published by the GAP Fukyu Suishin Kiko and the Japan GAP Foundation
Note: The number for GLOBALG.A.P. is at the end of June 2018.
The numbers for ASIAGAP and JGAP are at the end of March 2018

<Column>
Proactive utilization and publicization of agricultural GAP-certified products

In Mie Prefecture, government and private sectors have established a unified council to take advantage of the 2020 Tokyo Olympics/Paralympics to expand sales of the prefecture's agricultural, forestry and fisheries products, promoting such initiatives as the development of arrangements for providing agricultural GAP-certified products and campaigns in the Tokyo metropolitan region.

Reception using mainly GAP-certified food materials

HACCP (Hazard Analysis and Critical Control Point)

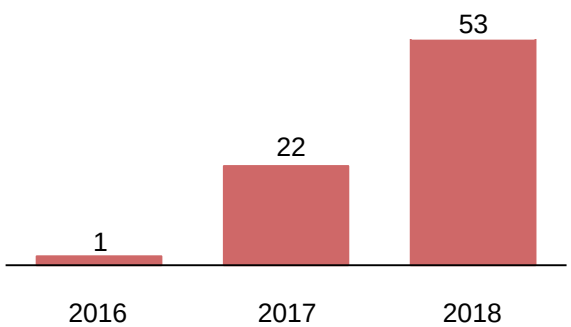
- HACCP is a hygiene control system to analyze hazards such as pathogenic microorganisms processing step and continuously monitor and record particularly critical steps. HACCP obligation is spreading globally.

- The revised Food Sanitation Act promulgated in June 2018 requires all food business operators to conduct hygiene control based on HACCP principle (to be fully enforced from 2021).

- The JFS-C standards* developed by the Japan Food Safety Management Association (JFSM) achieved GFSI recognition as international standards in October 2018.

  * Manufacturing sector standards compatible with international standards

Number of JFS-C standard acquisitions



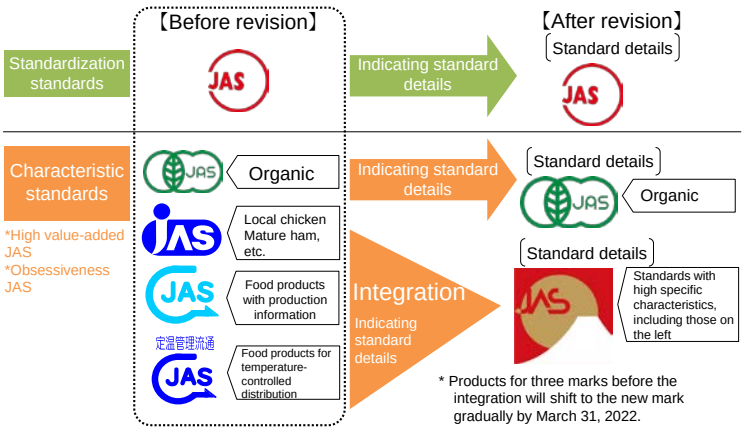
Source: Prepared by MAFF based on data from Japan Food Safety Management Association
Note: As of the end of September each year

JAS (Japanese Agricultural Standards)

- Act on Standardization and Proper Labeling of Agricultural and Forestry Products as revised in April 2018, expanded the scope of JAS standards to cover production methods, testing methods and business operators' agricultural and forestry product handling methods. Additionally, the quality of these products and the scope of these products, enabling the enforcement of more diversified JAS standards are leading to the appeal of production areas and business operators in Japan.

- In October 2018, a new JAS mark was determined through a popular vote.

New JAS mark



* Products for three marks before the integration will shift to the new mark gradually by March 31, 2022.

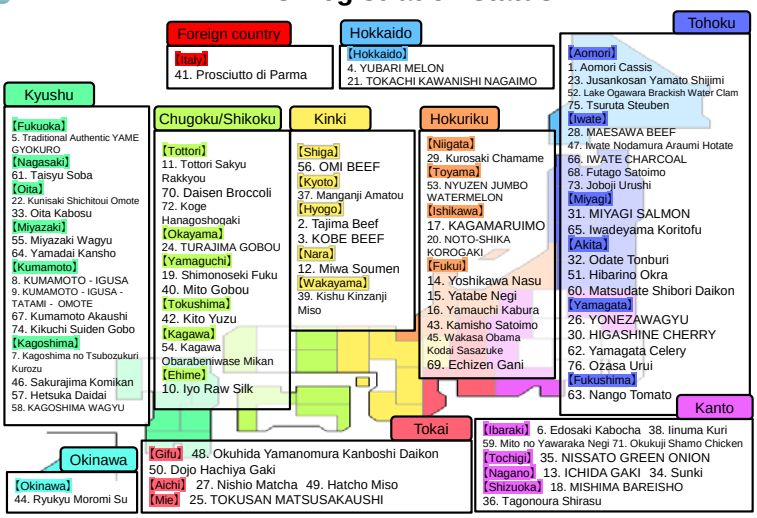
Source: MAFF

Geographical Indication (GI) protection system

- The GI protection system protects local characteristic products' names as intellectual property. At the end of FY2018, registrations covered 76 products, up 17 from a year earlier.

- The GI Act was revised to implement mutual protection at a higher level as agreed in the Japan-EU Economic Partnership Agreement. At the same time as the agreement took effect, mutual protection started for 48 Japanese products and 71 EU products.

GI registration status



Source: Prepared by MAFF using CraftMAP
Note: As of the end of FY2018

Variety protection

- New plant varieties registered under the Plant Variety Protection and Seed Act are protected as intellectual property (breeders' right). Numerous Asian countries have not acceded to the International Convention for the Protection of New Varieties of Plants, known as the UPOV Convention.

- At the East Asia Plant Variety Protection Forum in August 2018, participating countries adopted a 10-Year Strategic Plan including the Common Direction aiming at establishment of effective PVP systems consistent with the UPOV Convention among Forum members.

East Asia Plant Variety Protection Forum members' accession to the UPOV Convention

Five countries that have acceded to the convention	Japan, China, Republic of Korea, Singapore, Vietnam
Eight countries that have not acceded to the convention	Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand

Source: MAFF
Note: The UPOV Council confirmed the conformity of the Brunei's relevant law and Myanmar's relevant bill with the provision of the 1991 UPOV Convention in 2017.

Genetic resource protection

- In response to growing calls for protecting genetic resources of wagyu Japanese beef cattle, a panel of experts and livestock industry bodies to consider controlling the distribution of wagyu genetic resources has been established.

"Poster for enlightenment about domestic utilization"
Source: Council for domestic utilization of wagyu genetic resources

Topic 3

Growing Gibier Consumption

- Wild animal damage to farm products, though following a downtrend in recent years, has seriously affected rural areas. The capture of deer and wild boars to prevent such damage has made progress at various locations in Japan.
- The utilization of captured deer and wild boars for gibier is expected to increase rural income and stimulate ambitions to capture harmful animals, helping to mitigate damage to farm products and the human life environment.

30% increase in captured wild animals utilized for gibier

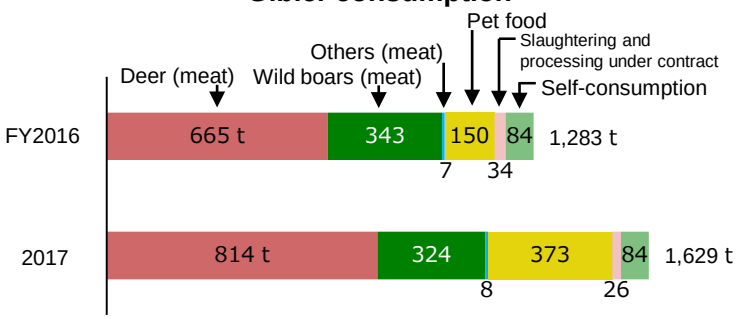
➢ Wild animals processed for gibier at meatpacking facilities in FY2017 increased by 30% from the previous year to 1,629 tons.

Particularly, deer for gibier meat increased by 149 tons to 814 tons and pet food production using wild animals rose by 223 tons to 373 tons.

➢ The gibier utilization rate in 2017 stood at 5.1% for wild boars, at 10.6% for deer and 8.0% for wild boars and deer, increasing from the previous year while remaining low. Initiatives are required to further expand gibier utilization.

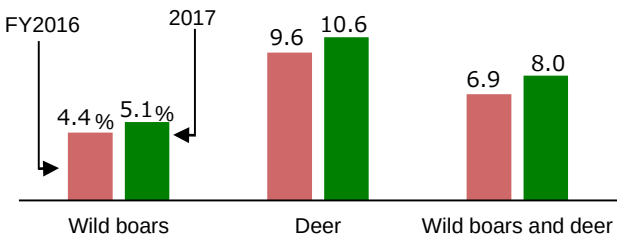
* The rate represents the percentage share of wild animals (deer and wild boars) processed for gibier in the total number of those captured.

Gibier consumption



Source: MAFF, Fact-finding Survey on Wildlife Resources Utilization

Gibier utilization rates for wild boars and deer



Sources: MAFF, Fact-finding Survey on Wildlife Resources Utilization; MOE, Wildlife Catches through Hunting and Harmful Wildlife Capture

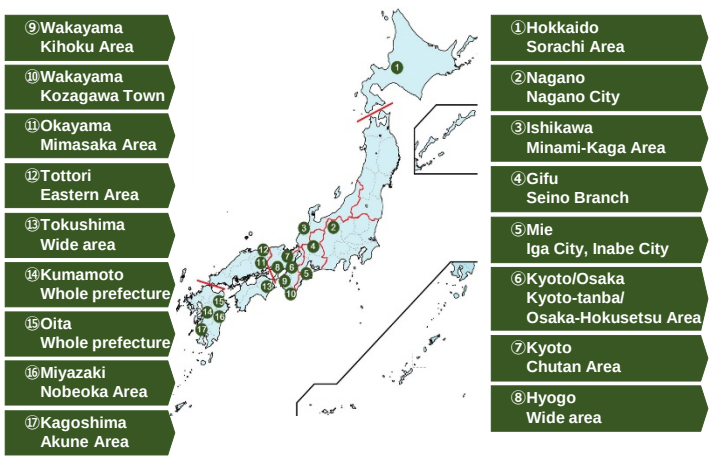
Note: The numbers of animals captured in FY2017 are preliminary figures as of March 7, 2019.

17 gibier utilization model areas selected

➢ MAFF selected 17 gibier utilization model areas as Japan's pioneer models to provide safe, good-quality gibier for sustainable business purposes.

➢ These areas have been developing core meatpacking and refrigeration facilities and introducing gibier cars for gibier utilization since FY2018.

Gibier utilization model areas

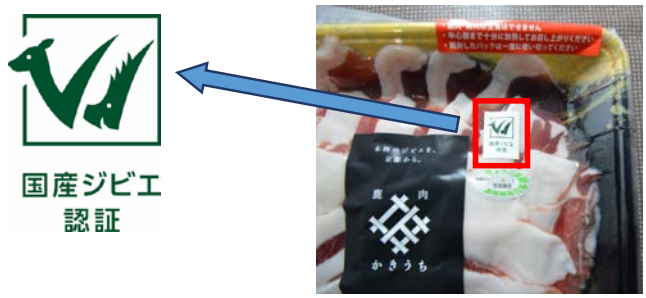


Source: MAFF

Domestic gibier certification system established to ensure consumers' security

- A domestic gibier certification system was established in May 2018 to ensure consumers' security concerning gibier.
- The system certifies meatpacking facilities that comply with sanitary control guidelines and unify standards and labeling for distribution.
- Certified meatpacking facilities indicate a certification mark on their gibier products to emphasize their safety.
- Three facilities – Kyotanba Shizen Kobo (Kyoto Prefecture), Iyanojibie (Tokushima Prefecture) and Shinshu Fujimi Kogen Farm (Nagano Prefecture) – have been certified under the system.

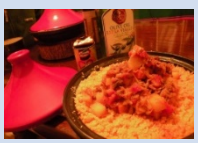
Gibier certification mark and product (wild boar)



Promoting campaigns for expanding nationwide demand for gibier

- The Gibierto website was opened in July 2018 to introduce gibier-serving restaurants, gibier events and other gibier information to expand nationwide demand for gibier.
- More than 1,000 shops including restaurants participated in two gibier fairs in summer and winter to create opportunities for consumers to eat gibier dishes.
- Gibier cooking seminars for professional were held at four locations in Japan to spread cooking methods.
- A gibier cooking contest was held for ordinary consumers, introducing prize-winning recipes.

Prize-winning recipes for cooking gibier

	Comments by recipe developers
	(Deer bibimpap and shank soup) [MAFF Minister's Prize] Maitake mushrooms including a protein-degrading enzyme were added to minced meat from deer shank to prevent the meat from hardening. Paprika including massive vitamin C was used as a bibimpap ingredient to facilitate the absorption of the massive iron found in deer meat. Soup was made using the gristle and bones produced by the mincing of the shank. Particularly, gristle can be used effectively through thorough boiling to produce good taste and soup stock.
	(Mountain food: Roasted deer with deer soup sauce) [MAFF Rural Development Bureau Director-General's prize] As deer bone soup is tasty, according to internet information, and is reportedly used for ramen noodles in some areas, I attempted to use the soup. I think that the shank, leg and bones may be used for more tasty dishes depending on the processing. The garnish of orange may be squeezed to produce a fresh smell to make the dish more delicious.
	(Dear meat couscous) [Japan Gibier Promotion Association Representative Director's prize] In Tunisia, I used lamb, chicken, fish, etc. for couscous. By using deer meat having a good chemistry with cumin, I made a delicious couscous dish featuring a gentle deer taste soaked fully into couscous. As vegetables were boiled with the couscous to soften the couscous, the deer meat became easier to eat and could be stuffed in the mouth. Eat the dish with light-body red wine or beer. Summer vegetables have the best chemistry with deer meat couscous. However, you may use seasonal vegetables such as daikon radish, carrot or white scallion in winter.

Source: Prepared by MAFF from Japan Gibier Promotion Association's "Gibier Cooking Recipes"

<Column>
Gibier attracting attention as low-calorie, nourishing ingredient

- Deer meat includes more iron and vitamins, over 50% less calories and 80% less fat than beef.
- Wild boar meat includes more vitamins and four times more iron than pork.
- Amid the growing health-conscious trend in recent years, gibier has attracted attention as a low-calorie, nourishing ingredient.

Source: MEXT, Standard Tables of Food Composition in Japan - 2015 - (Seventh Revised Edition)

1. Food self-sufficiency ratio and food self-sufficiency potential index

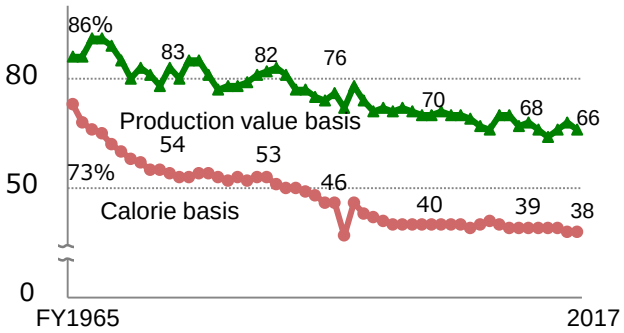
- In recent years, the food self-sufficiency ratio has remained around 40% on a calorie basis and around a 65-75% range on a production value basis.

  In FY2017, the food self-sufficiency ratio on a calorie basis remained unchanged from the previous year at 38% as a pickup in wheat and other production countered an increase in livestock imports. On a production value basis, the ratio decreased by 2 percentage points to 66% as livestock and seafood imports increased in value due to the yen's depreciation.

- The food self-sufficiency potential index, which shows potential food production capacity, exceeded the estimated energy requirement level in potato-oriented cultivation and slipped below the levels in rice/wheat/soybean-oriented cultivation.

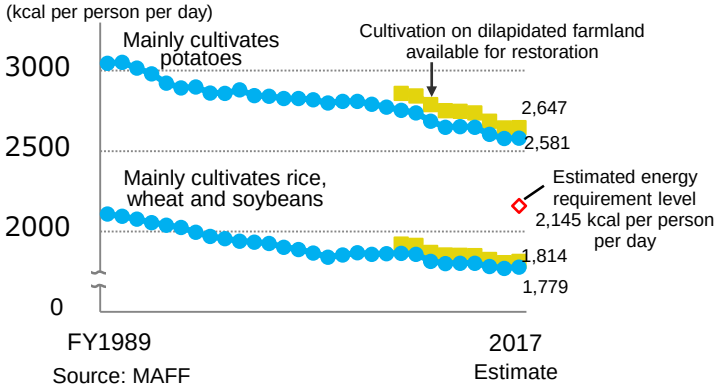
- Given the factors expected to destabilize global food supply and demand in the future, it is necessary to increase the nation's food self-sufficiency by enhancing its production to meet product-specific demands and by consolidating farmlands.

Total food self-sufficiency ratio



Source: MAFF, Food Balance Sheet

Trends in Food self-sufficiency potential index, etc.



Source: MAFF

2. Strategic exploration of global market

Expanding agricultural, forestry and fisheries products and food exports

- See Topic 1

Promotion of Japanese food culture overseas

- A total of 4,112 overseas restaurants and retail shops have been recognized as Japanese Food and Ingresient Supporter Stores Overseas that proactively use food products made in Japan.

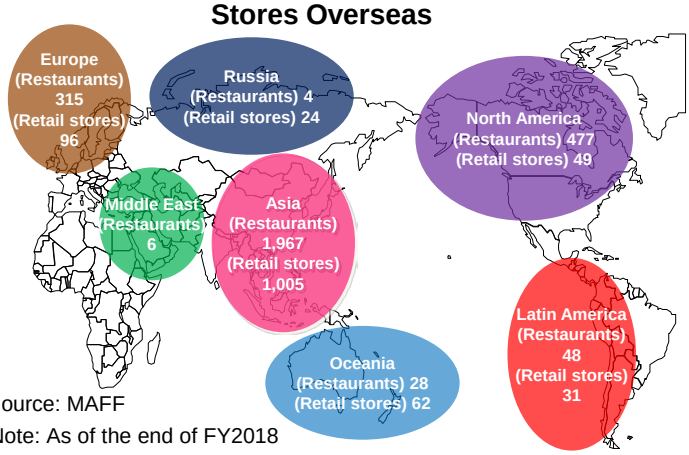
- A total of 92 persons in Japan and other countries serve as Special Goodwill Ambassadors to Spread Japanese Cuisine, who effectively transmit the allures of Japanese food and dietary culture in Japan and abroad.

- The "Taste of Japan" website, opened in 2013 to communicate the charms of Japanese food, lists 4,708 Japanese restaurants and 1,068 shops available for purchasing Japanese cooking ingredients in foreign countries, Japan and abroad.

Utilizing standards, certification and intellectual properties

- See Topic 2

Japanese Food and Ingresient Supporter Stores Overseas



Source: MAFF

Note: As of the end of FY2018

Top page and logo mark of "Taste of Japan" website for communicating allures of Japanese food

3. Global food supply and demand, and efforts for establishing food security

Global food supply/demand trends

- Global grain production declined for the second straight year due to a wheat output fall attributable to drought, etc., while global grain consumption increased on population and income growth.

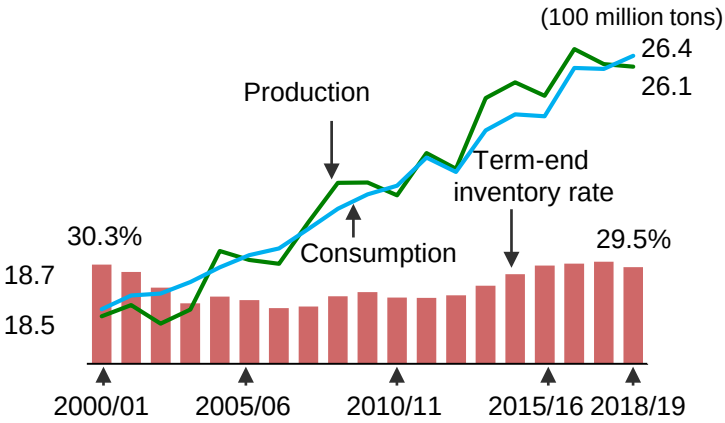
Establishing comprehensive food security

- MAFF secures stable food supply by increasing domestic production and combining it with imports and stockpiles and regularly analyzes and assesses risks in preparation for contingency.
- A monitoring survey of food industry business operators shows that only 9.7% of responding business operators have developed business continuation plans in preparation for natural disasters, indicating that more preparations are required for natural disasters.

Agricultural products trade negotiations

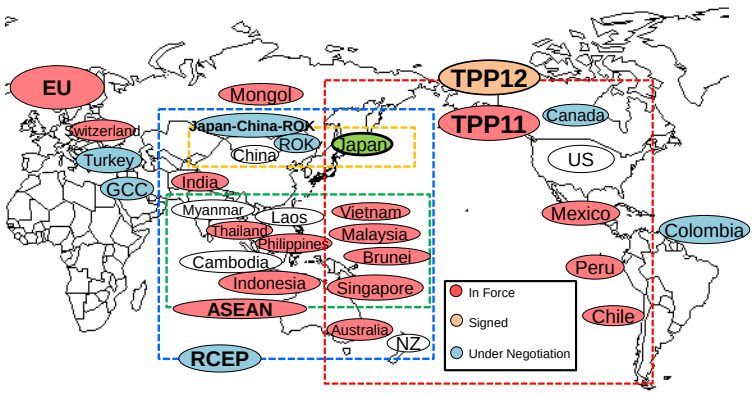
- The TPP 11 and Japan-EU EPA have taken effect. Until the end of FY2018, Japan had effectuated or signed a total of 18 EPA/FTAs.
- Japan has secured border measures, including the maintenance of the state trading system, the tariff quotas and the longer tariff reduction staging, to enable agriculture, forestry and fisheries to ensure their reproductions, and also implemented comprehensive domestic measures, including those for enhancing their competitiveness.

Global grain production, consumption, term-end inventory rate



Source: Prepared by MAFF, based on the United States Department of Agriculture, PS&D; World Agricultural Supply and Demand Estimates (as of March 2019)

EPA/FTAs in Japan



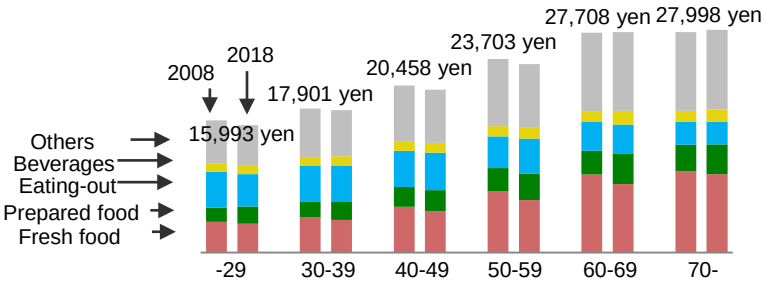
Source: MAFF (As of the end of FY2018)

4. Food consumption trends and promotion of Shokuiku (food and nutrition education)

- The more aged householders are, the more food consumption expenditure is in two-or-more-person households.

  From a decade earlier, consumption decreased for fresh food while increasing for prepared food.
- Two-or-more-member households including 60-year-old or older householders tend to pay higher unit prices for major food products.
- The Food Action Nippon Award program gives awards for excellent products contributing to expanding consumption of domestic agriculture, forestry and fisheries products and allows award-winning products to be sold through sales channels of 10 companies serving as judges.
- To promote protection and inheritance of traditional dietary cultures of the Japanese, workshops were provided to dietitians, childminders, etc. The government and private companies jointly launched the "Let's! Wagohan (Washoku) Project" in FY2018 to increase opportunities to eat Washoku at familiar sites easily.

Food consumption expenditure by category and householder age (per capita monthly consumption)



Source: MIC, Family Income and Expenditure Survey (Two-or-more-person Households)

"Let's! Wagohan Project" logo mark

5. Ensuring food safety and consumers' confidence

Improving food safety

- MAFF develops and disseminates measures for preventing or reducing contamination in food as necessary throughout the food chain from production to consumption based on scientific evidence.

- The Agricultural Chemicals Regulation Act as revised in December 2018 introduces a reevaluation system based on the latest scientific knowledge from the viewpoint of improving the safety of agricultural chemicals.

Ensuring consumer confidence

- To secure proper labelling of countries of origin, and details of raw materials and their production areas, etc., Regional Agricultural Administration Office officials conduct surveillance and enforcement based on the Food Labelling Act.

Animal and plant quarantine

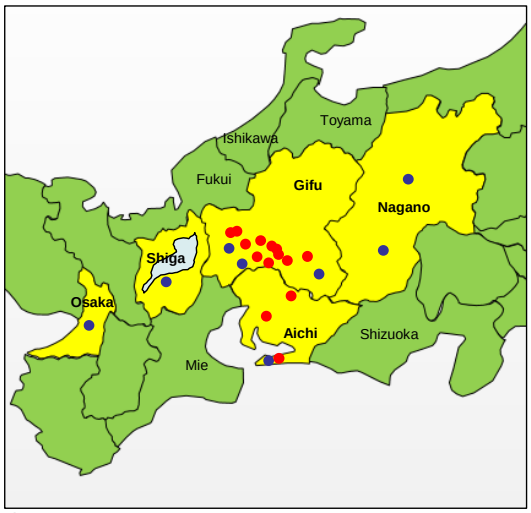
- To prevent Japan's first classical swine fever epidemic in 26 years from spreading, the government reaffirmed the compliance with livestock sanitary control standards and instructed improvements.

  The government also thoroughly informed citizens that classical swine fever does not infect humans and that eating pork from swine infected with the disease has no health problems.

- To prevent overseas livestock infectious diseases such as African swine fever from being brought into Japan, the government has given relevant warnings to passengers and conducted inspections using animal and plant quarantine detector dogs at airports and seaports.

- To prevent the introduction into Japan of plant diseases and pests damaging agricultural production, the government has implemented quarantine inspections on imported plants.

Classical swine fever epidemic locations (FY2018)



Source: MAFF
Notes: 1) As of the end of FY2018
2) Red points are for epidemic farms and blue points for relevant farms.

Key points of classical swine fever prevention measures (excerpts)

① Preventing humans, goods and vehicles from bringing viruses into Japan
- Full arrangements for cleaning and disinfection when people go into and out from sanitary control zones and pig houses.
- Full arrangements for establishing and using exclusive clothing and shoes for sanitary control zones
- Recording humans and goods going into and out from sanitary control zones
- Full arrangements for at least 30 minutes of heating treatment at 70 degrees Celsius or at least 3 minutes of such treatment at 80 degrees Celsius for cases in which feed includes or has the potential to include meat

② Wild animal measures
- Preventing excretion of mice and other wild animals from being mixed into feed at storage and other sides.
- Cleaning and decluttering around pig houses
- Dead livestock animals should be appropriately kept from being exposed to wild animals until treatment.

An animal and plant quarantine detector dog patrolling at an airport

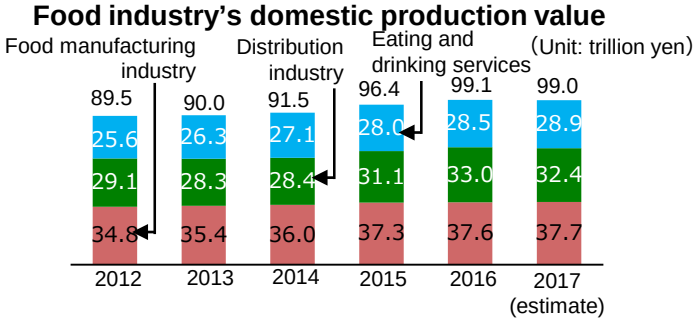
Posters informing travelers of goods subject to import bans
(Left: English Right: Chinese)

6. Trends of food industry

Present status and challenges of food industry

- The food industry's domestic production value has followed an uptrend in recent years, standing at 99 trillion yen in 2017, unchanged from the previous year.
- The food industry has close relations with the domestic agriculture, forestry and fisheries sector, receiving 70% of the sector's domestic food products.
- The food manufacturing industry won the largest share of the manufactured goods shipment value each in nine prefectures, indicating its key role in regional economies.
- MAFF published a food industry strategy in April 2018, putting in order the food industry's challenges and proposing the industry's targets for 2020.

Food industry's domestic production value

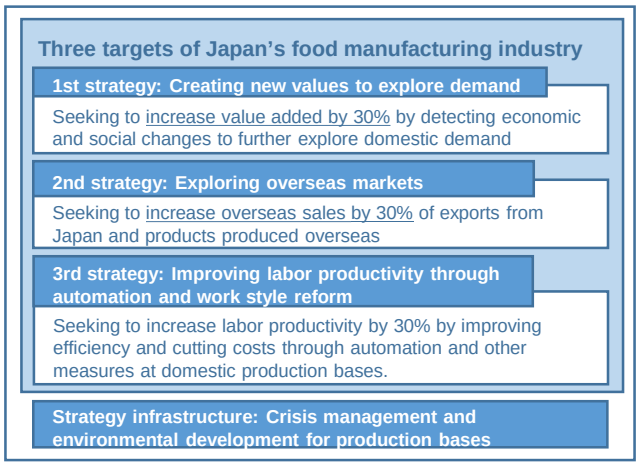


Source: MAFF "Economic Accounts for Agriculture and Food Related Industries"

Streamlining and upgrading food distribution

- In June 2018, an act to amend the Wholesale Market Act and the Act on the Food Marketing Structure was promulgated.
- Under the Agricultural Competitiveness Enhancement Support Act put into effect in August 2017, five corporate restructuring plans in the food and drink manufacturing industry were approved along with three such plans in the food and drink wholesale industry.

Direction of food industry strategy



Source: MAFF

Addressing environmental and other social challenges

- Japan's food loss and waste (edible part) is estimated at 6.43 million tons per year. Per capita food loss and waste (edible part) stands at 51 kg per year or 139 g per day.
- In view of the Sustainable Development Goals, the government is considering a target for reducing the edible part of food loss and waste from business operators while reviewing the basic policy of the Food Waste Recycling Law.
- Food-related business operators, consumers, local governments and other stakeholders are cooperating in implementing reduction initiatives for the edible part of food loss and waste, being supported by the central government.

Japan's food loss and waste

Per capita food loss and waste (edible part)

139 g per day

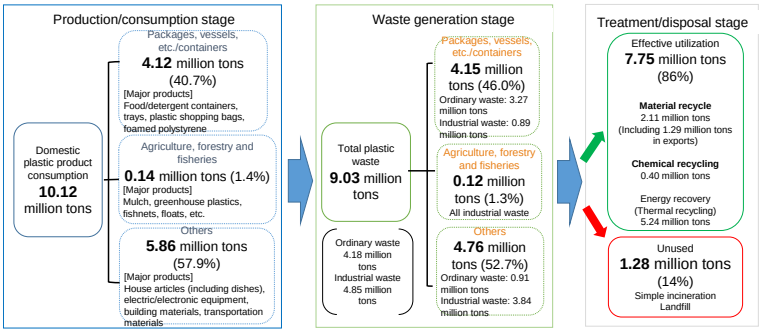
* Amounting to a bowl of rice

51 kg per year

* Amounting to annual per capita rice consumption (56 kilograms)

- In 2017, 9.03 million tons of plastic waste was generated, including 1.28 million tons (14%) subjected to incineration or landfill.
- The food industry has taken several measures, including switching to lighter/thinner containers or easily recyclable packages.
- MAFF provides information on food industry initiatives to promote cyclical use of plastic.

Material Flow of Plastics (2017)



Source: Prepared by MAFF from Plastic Waste Management Institute's "2017 plastics products production, Waste generation, recycling and treatment/disposal"

<Column> SDGs×Food Industry

- Sustainable development goals (SDGs) consist of 17 global goals and 169 global targets to realize an environmentally friendly, economically strong and socially balanced society.
- Not only public organizations but also private businesses should take part in initiatives to achieve the SDGs.
- A rising number of food business operators in Japan are implementing initiatives to achieve the SDGs.
- MAFF has opened the "SDGs×Food Industry" website to introduce these initiatives.

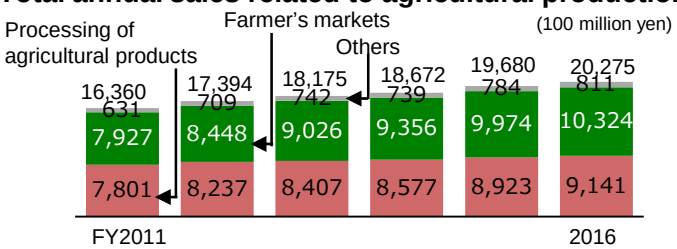
Example initiatives introduced on "SDGs×Food Industry"

Initiatives	SDGs for contribution
Developing goods contributing to resolving health problems	2, 3, 4
Introducing ordering methods to reduce food losses	12

7. Creation of new values through production, processing and distribution stages

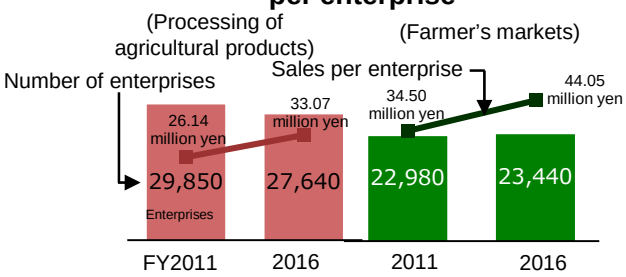
- Total sales from agricultural production-related initiatives such as processing and farmers' markets in FY2016 increased by 59.5 billion yen from the previous year to 2, 027.5 billion yen.
- Sales per enterprise in FY2016 increased from FY2011 both for processing of agricultural products and for farmer's markets.
- Municipal governments consider AFFrinnovation policies and cooperate with commercial and manufacturing business operators, universities and other local stakeholders to jointly promote AFFrinnovation.

Total annual sales related to agricultural production



Source: MAFF, Comprehensive Survey on AFFrinnovation
Note: "Others" cover tourism farms, farm inns and farm restaurants.

Number of agricultural product processing and farmer's market enterprises and sales per enterprise



Source: MAFF, Comprehensive Survey on AFFrinnovation

1. Trends of agricultural output, agricultural production income, etc.

- Total agricultural output continued a downtrend over a long time after a peak in 1984, before increasing from 2015.

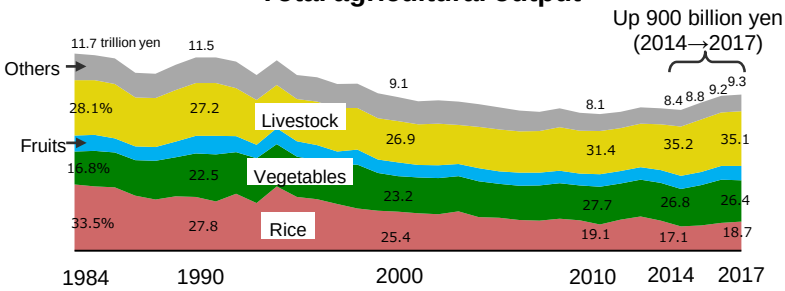
  Total agricultural output in 2017 increased for the third straight year due to price hikes through demand-based production for staple food rice, pork price rises amid robust demand, a chicken production increase, etc., reaching 9.3 trillion yen.

- Livestock output accounted for the largest share of 3.3 trillion yen in the total agricultural output, followed by 2.5 trillion yen for vegetable output.

- Livestock output accounted for the largest share in prefectural total agricultural output each in Hokkaido, Kagoshima and Miyazaki among the top-five prefectures in total agricultural output. Vegetable output captured the largest share each in the remining two prefectures – Ibaraki and Chiba.

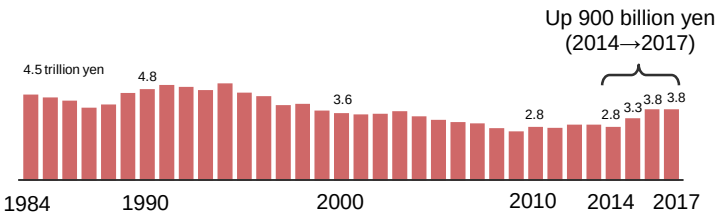
- Agricultural production income continued a downtrend for a long time before switching to an uptrend in recent years, rising to 3.8 trillion yen in 2017 for the third straight year of growth.

Total agricultural output



Source: MAFF, Agricultural Production Income Statistics

Agricultural production income



Source: MAFF, Agricultural Production Income Statistics

2. Promoting structural reform of agriculture

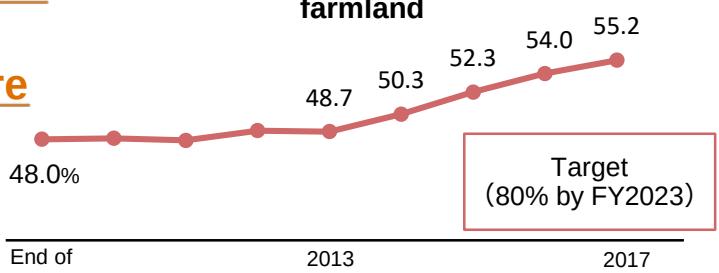
Farmland concentration and intensification through operation of the Public Corporation for Farmland Consolidation to Core Farmers through Renting and Subleasing (Farmland Banks)

- The total farmland area in 2018 decreased by 24,000 ha from the previous year to 4.42 million ha.

- As a result of the Farmland Bank initiative launched in 2014, business farmers' share of total farmland rose to 55.2% at the end of FY2017.

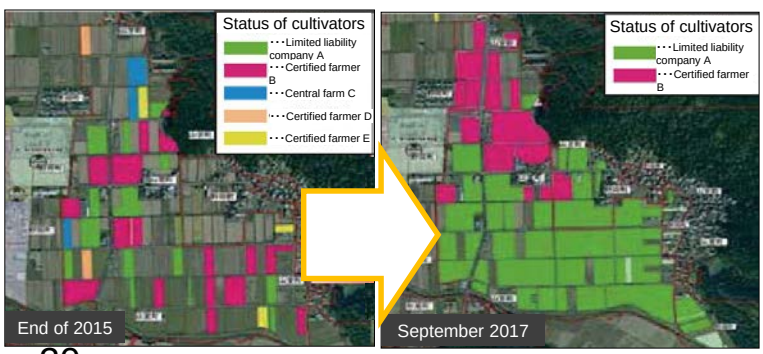
- In some cases, Farmland Banks have been used for eliminating farmland dispersion and confusion.

Business farmers' share of total farmland



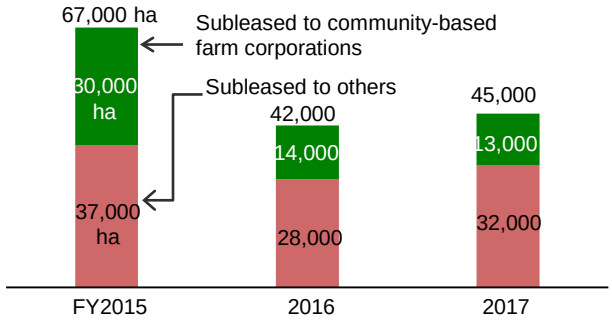
Source: MAFF
Note: Covering concentration through other means than farmland banks

Case for using a Farmland Bank to eliminate farmland dispersion and confusion (Echizen, Fukui Prefecture)



- Farmland bank utilization has run its course in flat paddy fields where demand for farmland concentration and intensification had gained momentum. In most other paddy fields, farmland concentration and intensification efforts must begin with preparatory local consultations. The challenge is how to revitalize such consultations.
- The government has submitted to the National Diet a bill for farmland banks, municipal governments, agricultural cooperatives, agricultural committees, land improvement districts and other stakeholders to promote local consultations.

Farmland subleased by Farmland Banks (excluding Hokkaido)



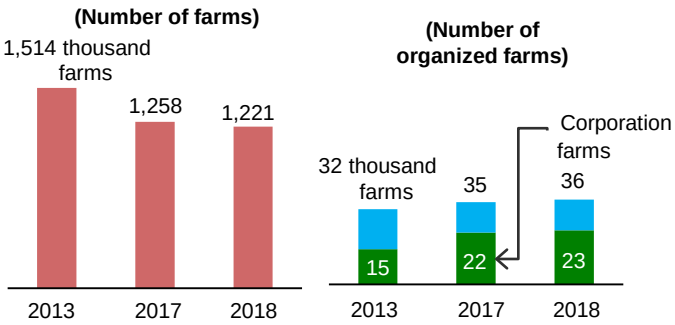
Source: MAFF

Developing and securing business farmers and strengthening human resources

- The number of core persons engaged mainly in farming in commercial farming households in 2018 decreased by 3.8% from the previous year to 1.451 million, with their average age standing at 67.

  The number of farms decreased by 3.0% from the previous year to 1.221 million farms. While the number of farms decreased, the number of corporation farms increased by 4.1% to 23 thousand due to their easier employment and business continuation.

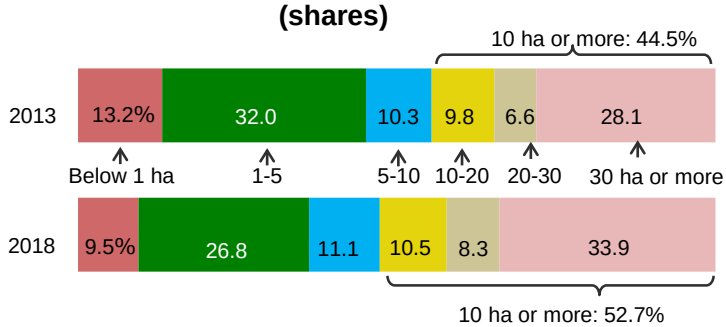
Numbers of farms and organized farms



Source: MAFF, Survey on Movement of Agricultural Structure

- Farms with 10 ha or more of cultivated land under management increased their share of total farms year by year to 52.7% in 2018.

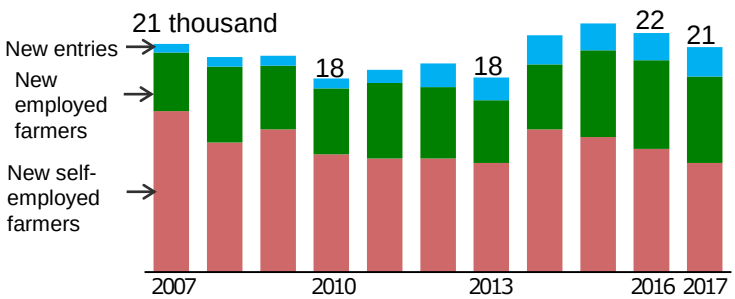
Farms by area of cultivated land under management (shares)



Source: MAFF, Survey on Movement of Agricultural Structure

- The number of 49 or less year-old newcomers in agriculture totaled 20,760 in 2017, topping 20 thousand for the fourth straight year.

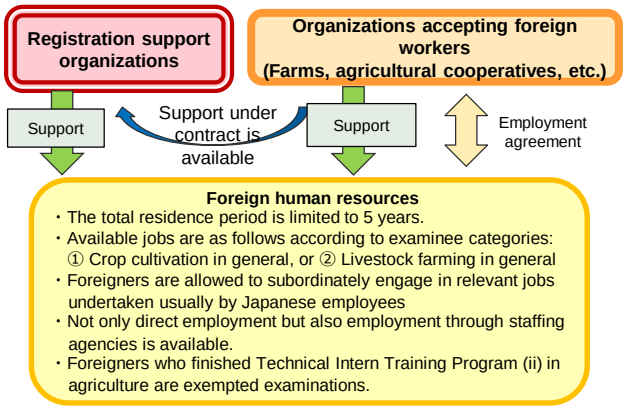
Number of 49 or less year-old newcomers in agriculture



Source: MAFF, Survey on Newcomers in Agriculture

- Labor shortages in agriculture are serious. An estimated 70 thousand more farmers were required as of 2017.
- An act to amend the Immigration Control and Refugee Recognition Act and the Ministry of Justice Establishment Act, as promulgated in December 2018, established a “specified skilled worker” as a new status of residence to accept foreign human resources with specified expertise/skills and some Japanese language proficiency in 14 fields including agriculture.

Specified skilled worker system for agriculture



Source: MAFF

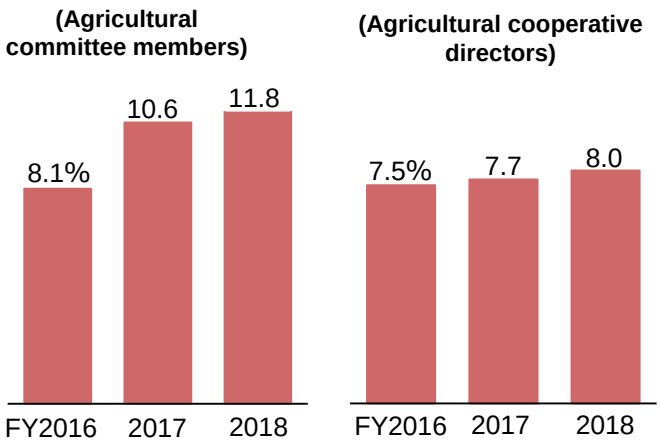
Participation of women farmers

- Under the Agricultural Committee Act revised in April 2016 and other measures, women’s shares of Agricultural Committee members and agricultural cooperative directors have increased.

  Particularly, women accounted for 11.8% of Agricultural Committee members in FY2018, indicating that women’s shares of leading posts were rising.

- The “Nougyou-Joshi Project” campaign for women farmers to be more active in agricultural business through cooperation with various industries to tap women farmers' knowledge and experiences was launched in 2013, marking its fifth anniversary in November 2018. At the end of FY2018, the number of project members stood at 740, with 34 companies participating in the project, increasing opportunities for project members’ performance.

Women’ shares of Agricultural Committee members and agricultural cooperative directors



Source: MAFF

Note: Data for agricultural cooperative directors in FY2018 are from the Central Union of Agricultural Cooperatives (Zenchu).

Revenue insurance system launched

- Under the Agricultural Insurance Act revised in April 2018, a revenue insurance system was launched in January 2019 as a new safety net covering the whole farm revenue.

Overview of revenue insurance

- Insurance premium rates are around 1%, with 80% or more of the standard revenue being insured.
- The revenue insurance covers not only natural disasters but also a wide range of agricultural business risks such as price drops for all agricultural products including rice, upland field crops, vegetables, fruits, flowers, tobacco, tea, shiitake mushrooms and honey, in principle.

<Example risks covered by revenue insurance>

Source: MAFF

3. Developing and conserving agricultural production infrastructure

- The government implemented the Land Improvement Act's revision and other institutional measures and fiscal ones to substantially enhance the agriculture and rural area development project.

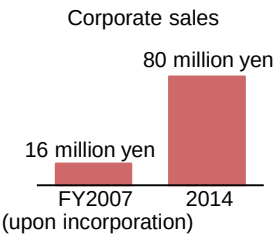
Enhancing agriculture's competitiveness through expanding farmland partitions and developing multipurpose farmland

- In 2017, 65.3% of rice paddies had been consolidated into 30 a or larger partitions. Irrigation facilities had covered 24.1% of upland fields.
- Of rice paddies consolidated into 30 a or larger partitions, 70% are well drained and available as upland fields. By developing multipurpose rice paddies, farmers can switch to agriculture business giving priority to vegetables and other highly profitable products to increase their income.
- To accelerate farmland consolidation for business farmers, MAFF has created and promoted a farmland development project related to Farmland Banks to implement farmland development without farmers' applications, approvals or costs.
- Informatization measures using information and communications technologies, drones, etc. are being introduced to improve the productivity of the agriculture and rural area development project.

<Case study>
Boosting profit by using rice paddies for multiple purposes (Kyoto Prefecture)

- Kumihama Town in Kyotango City has conducted rice paddy partition realignment and underdrainage since FY1983 to use rice paddies for multiple purposes, establishing a block rotation system to produce rice, black soybeans, etc. and a community-based farm organization for the system.
- The community-based farm organization was incorporated in 2007 to mobilize 37 ha of farmland for producing Kyoto vegetables. In FY2013, a groundwater level control system was developed to expand Kyoto vegetable production.
- The corporation's sales have quintupled from the level at the time of the incorporation.

Farmland where a groundwater level control system was developed to enable winter cropping

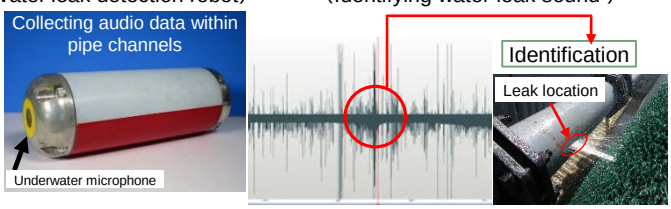


Extending service lives of agricultural irrigation facilities

- Developed agricultural irrigation facilities include core channels totaling 50,927 km and 7,556 core facilities including dams and diversion weirs.
- To save labor for the maintenance and management of agricultural irrigation facilities, MAFF is promoting the utilization of new technologies for improving functional diagnosis and other operations.

Using robots for functional diagnosis and surveillance on pipe channels

(Water leak detection robot) (Identifying water leak sound)

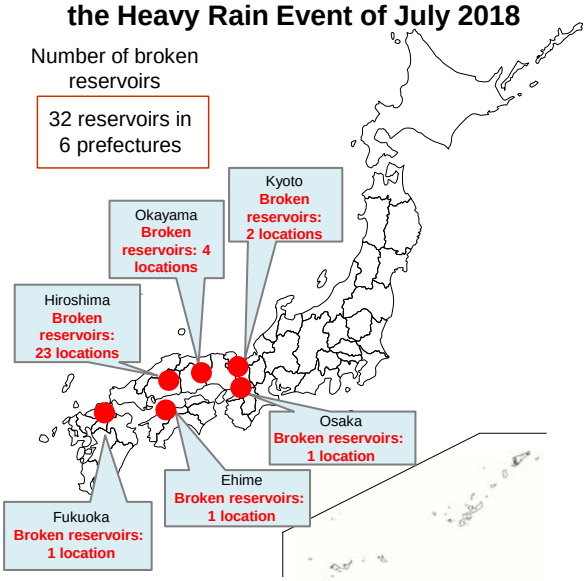


Source: National Agriculture and Food Research Organization (NARO)

Disaster prevention/reduction and national resilience enhancement to protect agriculture and rural areas from disaster risks

- In response to reservoirs affected the Heavy Rain Event of July 2018, the government has conducted emergency checkups on reservoirs throughout Japan.
- The government has set specific standards for selecting reservoirs subject to priority disaster prevention/reduction measures as "reservoirs that have potential to be broken to flood houses and public facilities and cause human damage."
- A bill to develop a mechanism for the adequate management and conservation of agricultural reservoirs has been submitted to the National Diet.
- See Special Topic 1 for 3-year emergency measures package for preventing/reducing disasters and enhance national resilience.

Reservoirs affected by the Heavy Rain Event of July 2018



Source: MAFF

4. Rice policy reform trends

- Given a decline in annual rice consumption, the government abolished its allocation of a production target from 2018 and switched to a policy of leading production areas and producers to produce and sell rice in line with demand.

- MAFF provides information in a fine-tuned manner, promotes the expansion of stable transactions and supports planting of wheat, soybeans, rice for feed and other crops at rice paddies.

- While Japan's staple food rice planting area in 2018 increased by 16 thousand ha from the previous year, the rice crop condition index was limited to 98, allowing production to be almost the same as a projection in a supply and demand outlook. Rice prices were firm.

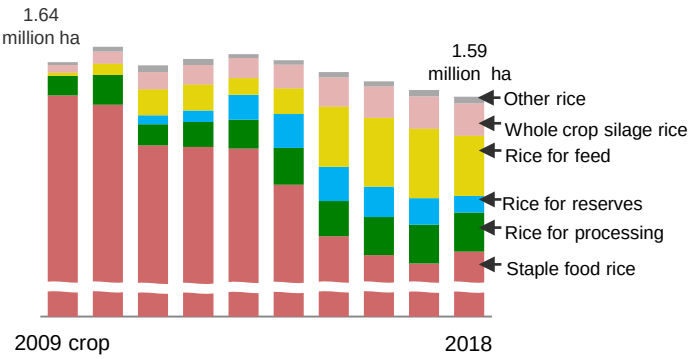
- As demand for staple food rice is expected to continue decreasing, it is important to promote switching rice paddy products from rice to wheat/barley, soybeans, rice for feed and highly profitable crops. The government has improved procedures for the public rice reserve system by expanding priority quotas by production area to make it easier for production areas to operate the system.

- Rice for food services and home-meal replacements accounts for 30% of staple food rice demand and is expected to remain in robust demand. To prevent mismatching between producers willing to provide higher-priced rice and consumers seeking rice at affordable prices, the government supports matching between supply and demand.

- The government has repealed the Main Crop Seed Act requiring prefectural governments uniformly to supply rice, wheat/barley and soybean seeds and is promoting the development of seed supply arrangements meeting various demands. Prefectural governments have been establishing regulations reflecting public-private collaboration and regional characteristics.

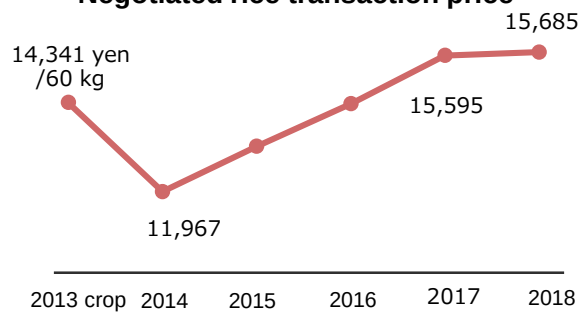
- As rice flour certified under the third party certification system for non-gluten rice flour products has been distributed since June 2018, rice flour demand is expected to increase, including demand for exports.

Rice planting area



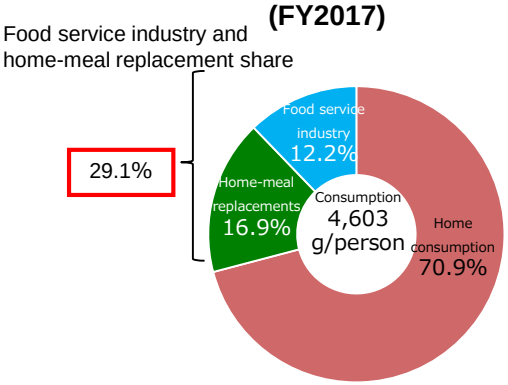
Sources: MAFF, Statistics on Cultivated Land and Planted Area;
MAFF surveys

Negotiated rice transaction price



Source: MAFF "Rice Transactions Report"
Notes: 1) The negotiated rice transactions price is the price for transactions between shipping organizations and wholesalers.
2) The price represents the average of prices from initial annual shipments to October next year (prices for 2018 cover transactions until March 2019).

Breakdown of staple food rice consumption (FY2017)



Source: Beikoku Antei Kyokyu Kakuho Shien Kiko "Rice Consumption Trends"

Logo mark for certification of non-gluten rice flour products and the first certified product

5. Production trends for major farm and livestock products

Wheat

- Benchmark 2019 wheat crop prices increased for multiple brands due to worse production in the previous year and consumers' growing demand for domestic wheat.
- MAFF promotes wheat quality and yield stabilization and improvement initiatives including thorough farmland drainage measures and the introduction of excellent varieties.

Auction results for major wheat brands

(Unit: yen, %)

Production area	Brand	Previous year benchmark price	2019 crop benchmark price	Compared with previous year
Hokkaido	Kitahonami	51,989	59,956	115.3
Hokkaido	Yumechikara	49,248	58,127	118.0
Hokkaido	Haruyokoi	53,966	63,696	118.0
Aichi	Kinuakari	42,925	46,402	108.1
Ibaraki	Satonosora	36,591	42,880	117.2

Source: Prepared by MAFF from the National Rice Wheat and Barley Improvement Association's "Auction results for wheat/barley produced in 2019"

Vegetables/Fruits

- Production expanded for cabbage and some other vegetables in strong demand for processing and commercial purposes as demand was growing for food services and home-meal replacements.
- Among fruits, Shine Muscat grapes, which can be eaten with their peel and feature excellent taste, and some others posted production growth.
- As work hours per land area unit for vegetable and fruit production are longer, MAFF promotes productivity improving initiatives including work system revisions, automation and the introduction of labor-saving fruit tree forms.

Work hours for harvest using cabbage harvesters

	Manual harvest	Machine-using harvest
Harvest hours	32 hours/10a	**17 hours/10a**

Source: MAFF "New Agriculture/Forestry Technologies"

Source: National Agriculture and Food Research Organization (NARO)

The left photo shows cabbage harvest using a harvester for processing and commercial purposes. The right one shows sorting, preparation and containing operations on a harvester.

Livestock products

- While the number of livestock farms decreased for each livestock category in 2018, the number of animals raised per farm increased.
- While the number of dairy cattle raised in Hokkaido turned upward, the number in the other prefectures continued declining.
  Given that raw milk output per cattle is increasing despite the downtrend in total raw milk output, securing cows is expected to lead to a recovery in raw milk output.
- As the number of breeding cows turned upward, beef production increased for the first time in five years.
  Beef calf prices have remained high. Guaranteed standard prices under the beef calf producer subsidization system are raised in line with present business conditions, considering current situations of small-scale production and in the direction of business modernization.

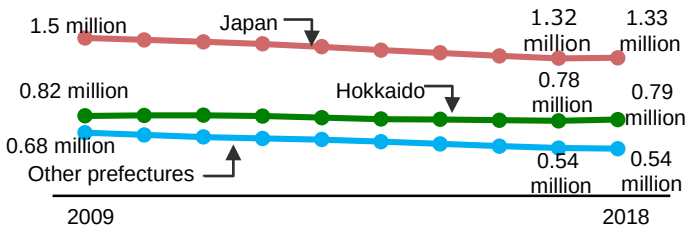
Numbers of livestock farms and animals per farm

(Unit: household, animal, poultry)

		Number of livestock farms		Number of animals per farm	
		2008	2018	2008	2018
Dairy cattle	Hokkaido	8,090	6,140	101.3	128.8
	Excluding Hokkaido	16,300	9,540	43.8	56.3
Beef cattle		80,400	48,300	35.9	52.0
	Cows for breeding	69,700	41,800	9.6	14.6
	Fattening cattle	11,900	7,620	64.7	96.7
	Dairy cattle for beef	7,230	4,650	147.6	174.8
Pigs		7,230	4,470	1,347.9	2,055.7
Layers (×1000)		3,300	2,200	43.2	63.2
Broilers (×1000)		2,456	2,260	41.9	61.4

Source: Prepared by MAFF based on MAFF, Statistics on Livestock; Statistics on Livestock Products Marketing
Note: As of February 1 each year

Number of dairy cattle raised



Source: MAFF, Statistics on Livestock
Note: As of February 1 each year

6. Promoting measures to enhance agricultural production competitiveness

Development and extension of new agricultural technologies

- Industry-academia-government research collaboration is promoted to introduce various fields' technologies into the agriculture, forestry and fisheries, and food field to create innovations.
- The Strategic Innovation Promotion Program (SIP) and other initiatives have accelerated crop improvements using genome editing.
- See Special Topic 2 for smart agriculture

GABA-containing tomatoes

Tsukuba University has developed tomatoes containing massive GABA that has hypotensive effects.

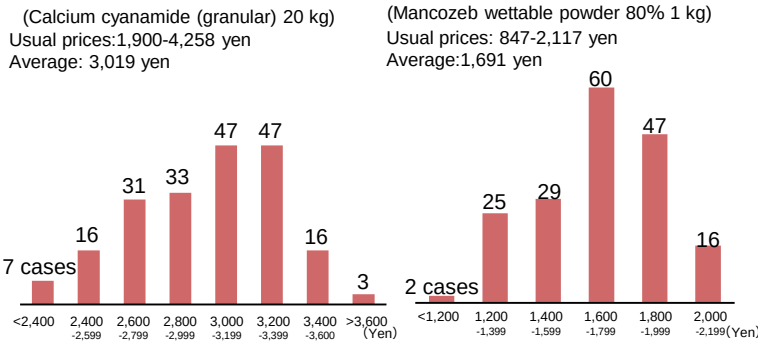
Potatoes containing far less natural toxins

Osaka University and Riken developed potatoes in which natural toxins (such as solanine and chaconine) have been reduced substantially.

Moves to lower agricultural input prices

- Domestic prices of fertilizers and agrichemicals largely vary even though the products' components and standards are the same. Overseas prices cannot be simply compared with domestic prices because of wide differences in farmers' production conditions and agricultural inputs situations but are generally lower than domestic prices.
- Based on the Act on the Support for Strengthening Agricultural Competitiveness Act, one fertilizer and two feed companies' business restructuring plans have been approved. A plan for expansion into agricultural machinery business has been approved, making progress in industrial restructuring.

Fertilizer/agrichemical sales price distribution

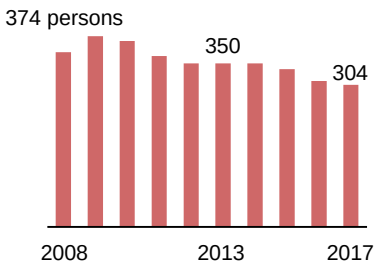


Source: MAFF "Survey on Agricultural Materials Supply in Japan and Other Countries"

Promoting farming safety measures

- The number of people who died due to accidents during farming in Japan in 2017 decreased by eight to 304.
- To enhance safety guidance for aged farmers vulnerable to accidents, MAFF promotes experts' safety checkups and the dissemination of GAP (good agricultural practices) that can contribute to forestalling farming accidents.

Deaths from farming accidents



Source: MAFF "Overview of Fatal Farming Accidents in 2017"

7. Promotion of environmental policy such as responses to climate change

Promoting climate change mitigation/adaptation measures, etc.

- The 24th Conference of Parties to the United Nations Framework Convention on Climate Change (COP24) agreed on common guidelines for all countries for implementing the Paris Agreement.
- The Climate Change Adaptation Act to promote initiatives to avoid and mitigate climate change impacts took effect in December 2018, following the Law Concerning the Promotion of the Measures to Cope with Global Warming to promote the reduction of greenhouse gas emissions. Japan has thus developed two laws to promote climate change mitigation and adaptation.

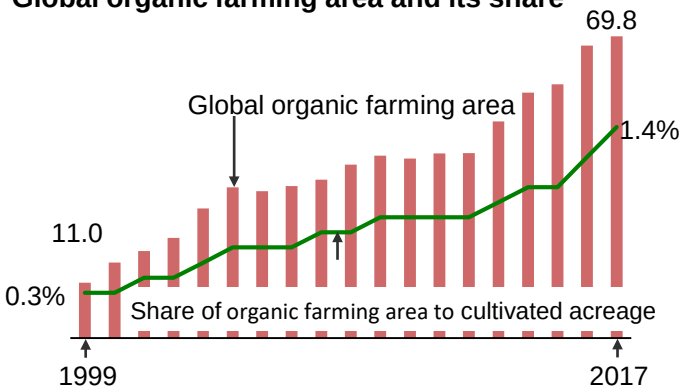
Chronology of events after Paris Agreement adoption

Source: MAFF

Promotion of ecofriendly agriculture

- The global organic farming area expanded six-fold from 1999 to 2017, with global organic food sales reaching 11 trillion yen. The Japanese organic food market also grew to 185 billion yen.
- MAFF has supported initiatives in various locations for establishment of stable organic food supply systems such as making manuals for organic farming and holding seminars for promoting new entries into organic farming, etc.

Global organic farming area and its share (million ha)



Source: Prepared by MAFF based on FiBL＆IFOAM, THE WORLD OF ORGANIC AGRICULTURE STATISTICS & EMERGING TRENDS 2019

8. Agriculture-related organizations supporting agriculture

- Agricultural cooperatives are reforming themselves. Under one of new initiatives, the National Federation of Agricultural Cooperative Associations known as Zenno compiled opinions of business farmers and ordered tractors with limited functions.
- As the Agricultural Committee Members for promotion of optimized farmland usage were established under the Act on Agricultural Committees and Related Organizations as revised in April 2016, the number of Agricultural Committee Members increased throughout Japan, with the number of committee members aged below 50 rising to rejuvenate Agricultural Committees.
- MAFF has promoted the consolidation of agricultural mutual relief associations into one in each prefecture to streamline their operations. In April 2018, the Federation of Agricultural Mutual Relief Associations was established, launching revenue insurance systems.
- In land improvement districts where nonfarming landowner households have increased, MAFF promotes transition to farming arrangements in which cultivators' opinions are appropriately reflected and steps up administrative streamlining. An act to amend the Land Improvement Act was promulgated in June 2018.

<Case study> Zenno's joint tractor purchase initiative

- Zenno requested four companies to develop a 60-horsepower tractor reflecting opinions of farming groups and business farmers and selected one through an auction.
- Functions were limited to necessary ones such as a fuel tank which requires no refueling for one day, as well as an automatic brake.

Developed 60-horsepower tractor

- Zenno has taken advantage of joint purchases and an auction to cut prices by 20-30%.
- Other companies have released new tractors at low prices, indicating that the effects of the Zenno initiative have made an impact on the agricultural machinery industry.

Status of Agricultural Committees

(Unit: number of committees, persons)

		Before revision	After revision
Number of Agricultural Committees		1,707	1,703
Number of Agricultural Committee Members		35,488	23,196
	Women	2,650	2,747
	Members aged below 50	1,233	1,662
Number of members for promotion of optimized farmland usage		—	17,824
Total number of Agricultural Committee Members and members for promotion of optimized farmland usage		35,488	41,020

Source: MAFF

Note: Data before the revision are for 1,707 Agricultural Committees as of October 1, 2015, before the April 2016 revision. Data after the transition to the new system are as of October 1, 2018, when all Agricultural Committees completed transition to the new system under the revised act (the numbers of Agricultural Committees before and after the revision do not match because of mergers and abolitions).

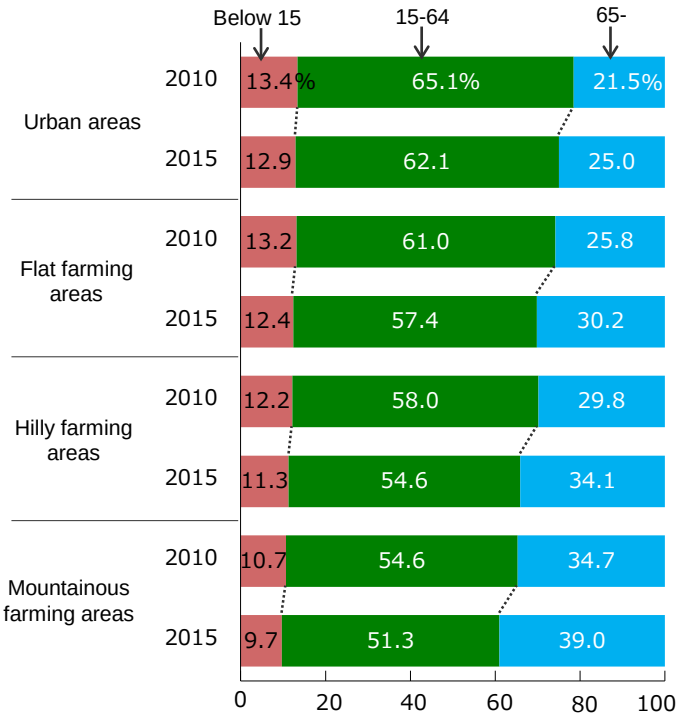
Chapter 3 Taking Advantage of Local Resources to Promote and Vitalize Rural Areas

1. Initiatives responding to social changes

- In flat, hilly and mountainous farming areas, population aging and a productive population decline are going on ahead of urban areas. As the number of small communities with nine or less households has increased, some communities are expected to face difficulties in maintaining their functions.

  Meanwhile, there are some mountainous areas and remote islands to which people have moved from the Tokyo metropolitan region.
- AFFrinnovation utilizing rural resources and other initiatives to create jobs and income are implemented at various locations in Japan.
- The government promotes various initiatives for residents to proactively support local livelihood, including “small hubs” to concentrate and secure living-related services.
- Hopes are placed on information and communications technologies to resolve rural problems. MAFF is developing a collection of best practices to utilize these technologies for enhancing settlement conditions.

Population by classification of agriculture area and age group



Sources: Prepared by MAFF based on MIC, Population Census

2. Promoting agriculture in hilly and mountainous areas

- Hilly and mountainous areas account for 10% of Japan’s population and 40% of its total farming area and output, playing a key role in performing multiple functions including food production. The government takes various measures to support the revitalization of agriculture and communities in these areas.
- While hilly and mountainous areas are under unfavorable farming conditions, some take advantage of local resources for realizing profitable farming. They are expected to step up unique farming and AFFrinnovation initiatives.
- Through the Agriculture Renaissance Project and income improvement measures in hilly and mountainous areas, the government comprehensively supports motivated farmers irrespective of their business size.
- At rice terraces plagued with unfavorable farming conditions, particularly, it is important to promote ownership and other exchange programs, marketing of terrace rice and processed rice products, and other initiatives taking advantage of various values of terraced rice paddies.

Major indicators for hilly and mountainous areas (2015)

	National total	Hilly and mountainous areas	Share
Population	127 million persons	14 million persons	11.2%
Farmland	4.50 million ha	1.84 million ha	40.9%
Agricultural output	8.86 trillion yen	3.61 trillion yen	40.8%

Sources: MIC, 2015 Population Census; MAFF, 2015 Census of Agriculture and Forestry; 2015 Statistics on Cultivated Land and Planted Area; Agricultural Production Income Statistics 2015

Oyama Senmaida（Chiba Prefecture）

<Case study> Special product development and wild animal damage countermeasures under the Agriculture Renaissance Project (Nagano Prefecture)

- Ina City takes advantage of the Agriculture Renaissance Project in hilly and mountainous areas for income improvement through industry-government-academia collaboration.
- The city has developed special products utilizing the local product of turnip and crimson glory vine it has developed jointly with Shinshu University.
- A sensor was developed to mitigate labor for checking traps to prevent wild animal damage.

Juice, jam and wine made from crimson glory vine

<Column> Rice terrace-based conservation and promotion

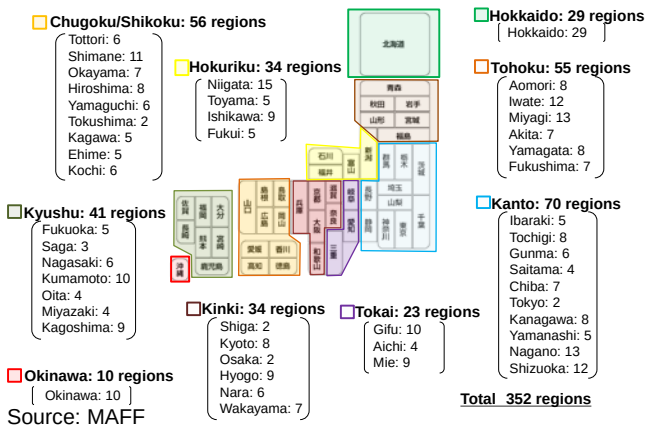
- Rice terraces represent a national asset that passes down the origin of Japan's rice cultivation.
- MAFF has published a guideline for promoting rice terraces as killer content, indicating practices built on rice terraces to achieve unique development, as well as how to resolve challenges regarding rice terrace conservation and local revitalization.

"Guideline for promoting rice terraces as killer content"

3. Promoting Countryside Stay

- Countryside Stay represents long-stay tours in which tourists experience traditional Japanese lives and enjoy exchanges with farmhouse and other local residents in rural areas.
- Inbound travel demand has robustly expanded. Foreigners staying in rural areas account for more than 40% of foreign-tourist stays in Japan.
- Under the target of creating 500 areas that can implement countryside stay business by 2020, the government supports the development of local arrangements, accommodation facilities utilizing old folk houses, etc., and agriculture-forestry-fisheries and rural experience facilities.
- The government supports the launch of a Countryside Stay portal site to integrate and provide information on Countryside Stay areas.
- The government has certified 21 SAVOR JAPAN regions that utilize mainly local food, and agriculture, forestry and fisheries to attract mainly foreign travelers.

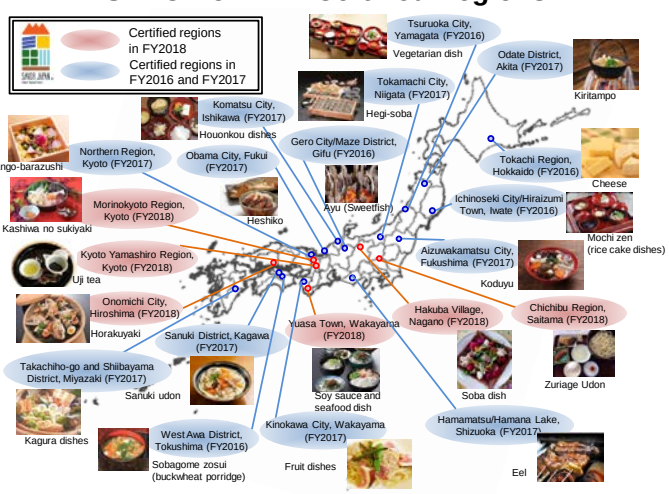
Adoption of Countryside Stay Promotion Measures



Source: MAFF

Note: Regions subjected to FY2018 rural area promotion subsidies (Countryside Stay promotion measures)

SAVOR JAPAN Certified Regions

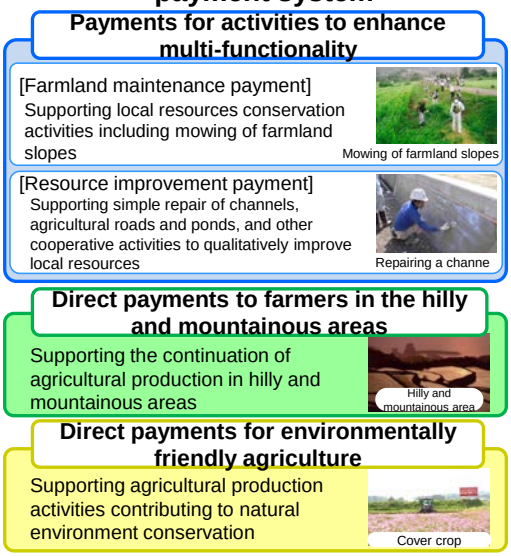


Source: MAFF

4. Maintaining and demonstrating multifunctional roles of agriculture and rural areas

- All Japanese citizens benefit from the effects of agriculture's and rural areas' multifunctional roles including land conservation.
- The Japanese agricultural direct payment system supports local activities to maintain and demonstrate the multifunctional roles.
- The payment for activities to enhance multi-functionality has brought about various effects including non-farming people's growing participation and the appropriate conservation and management of farming facilities.
- The direct payment to farmers in the hilly and mountainous areas has contributed to cutting growth in abandoned cultivated land.
- Activities supported by the direct payments for environmentally friendly agriculture are estimated to cut greenhouse gas emissions by 150 thousand tons a year.
- Agricultural systems with a historical background and contemporary relevance are certified as Globally Important Agricultural Heritage Systems (GIHAS) or Japanese Nationally Important Agricultural Heritage Systems (J-NIAHS).

Outline of the Japanese agricultural direct payment system



Source: MAFF

Japanese Nationally Important Agricultural Heritage Systems certified in FY2018

Okuizumo Region, Shimane Prefecture

Mogami River Basin, Yamagata Prefecture

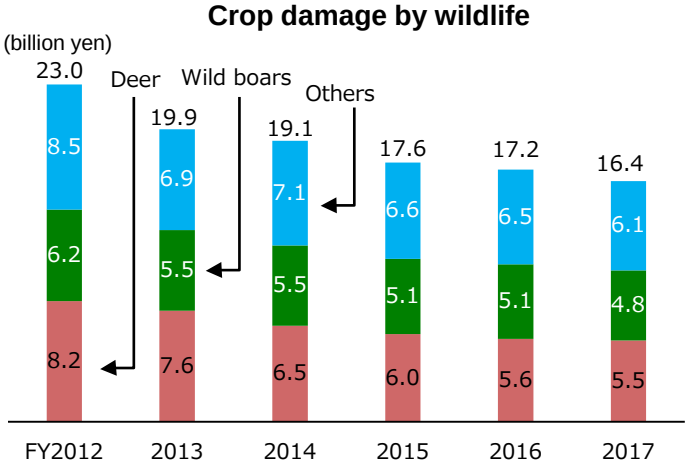
5. Addressing wildlife damage

- Wildlife damage in FY2017 decreased for the fifth straight year thanks to wildlife damage prevention initiatives, totaling 16.4 billion yen.

  Nevertheless, such damage discourages farmers from continuing agriculture or encourages them to abandon cultivation, indicating more serious impacts on rural areas than signaled by the damage value decline.
- Municipal governments play a central role in implementing wildlife damage prevention measures based on the Act on Special Measures for Prevention of Damage Related to Agriculture, Forestry and Fisheries Caused by Wildlife.

  At the end of April 2018, 1,479 municipal governments had developed wildlife damage prevention plans.
- In FY2017, 0.61 million deer and 0.55 million wild boars were captured.
- The development of capture methods using information and communications technologies has been promoted. A total of 346 municipal governments have introduced such methods, accounting for 20% of municipal governments that have developed wildlife damage prevention plans.
- See Topic 3 for growing gibier consumption

Crop damage by wildlife



Source: MAFF

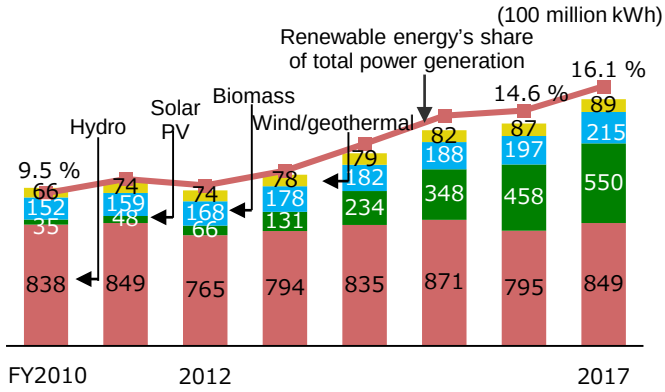
Large ICT trap

Sensor installed to monitor wildlife ecology

6. Utilizing renewable energy

- The Long-term Energy Supply and Demand Outlook indicates a target of boosting renewable energy's share of total power generation to 22-24% by FY2030. The share in FY2017 rose by 1.5 points from the previous year to 16.1%.
- In FY2018, five municipalities were selected as biomass industry cities seeking to build an environmentally friendly, disaster-resistant town supported by a biomass industry taking advantage of regional characteristics, bringing the total number of such cities to 83.

Renewable energy's share of total power generation

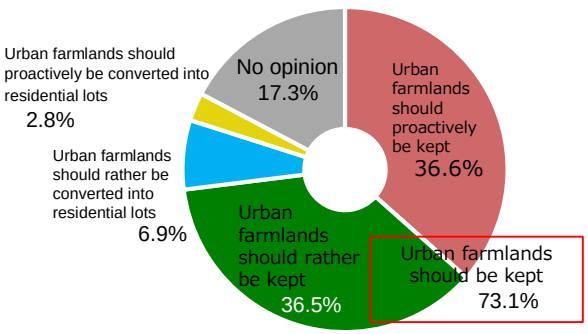


Source: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry "Comprehensive Energy Statistics"

7. Promotion of urban agriculture

- A poll of urban residents found that 73.1% of respondents sought to keep urban agriculture and farmlands.
- A basic plan under the Basic Act on the Promotion of Urban Agriculture shifted the position of urban farmlands from "those that should converted into residential lots" to "those that should exist."
- Although farmlands designated as productive green zones by municipalities are set to become available for their owners' sale to municipalities in 30 years, a specified productive green zone system was launched in April 2018 to extend the period for 10 years to conserve those farmlands.
- An urban farmland leasing act was put into force in September 2018, launching a system for farmlands in productive green zones to be leased securely.
- Relevant laws have been revised to reduce fixed asset tax on specified productive green zones and retain a moratorium on inheritance tax on leased farmlands in productive green zones.

Urban residents' views on conservation of urban agriculture and farmlands



Source: MAFF "Poll on Urban Agriculture" (May 2017)

Tax measures for farmlands in urbanization promotion areas after legal revisions

(Cutting fixed asset tax)

	Specified cities in 3 major metropolitan regions	Municipalities other than specified cities in 3 major metropolitan regions
Farmlands in urbanization promotion areas	Residential land assessment and taxation	Residential land assessment and quasi-farmland taxation
Productive green zones (Those within 30 years after designation or specified productive green zones)	Farmland assessment and taxation	Farmland assessment and taxation

(Moratorium on inheritance tax)

	Specified cities in 3 major metropolitan regions	Municipalities other than specified cities in 3 major metropolitan regions	Leasing that cannot be reason for terminating tax moratorium
Farmlands in urbanization promotion zones	Not applied	Applied (Exemption after 20-year moratorium)	Leasing for reason of farming difficulties
Productive green zones (Those within 30 years after designation or specified productive green zones)	Applied (Lifetime farming is required)	Applied (Before revision: exemption after 20-year moratorium) (After revision: Lifetime farming is required)	Leasing for reason of farming difficulties (After revision: leasing under the urban farmland leasing act was added)

Source: MAFF

Chapter 4 Restoration/Reconstruction from Great East Japan Earthquake and Kumamoto Earthquake

1. Restoration/Reconstruction from Great East Japan Earthquake

Earthquake and tsunami damage and restoration/reconstruction

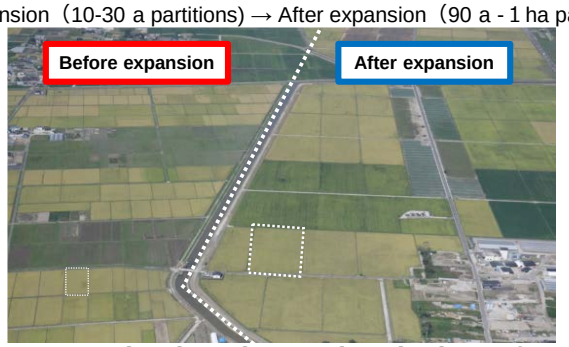
- At the end of January 2019, tsunami-damaged farmlands totaling 18,150 ha were available for resuming farming, accounting for 92% of farmlands subjected to restoration.
- In Iwate, Miyagi and Fukushima Prefectures, farmland partitions have been expanded (covering 8,320 ha) during restoration, making progress in the development of local farming restoration infrastructure.

Impacts of the accident at Tokyo Electric Power's Fukushima Daiichi Nuclear Power Station and restoration/reconstruction

- Under the Act on Special Measures for the Reconstruction and Revitalization of Fukushima revised in May 2017, a system for plans to promote the reconstruction and revitalization of "special reconstruction/restoration zones" pursuing the return of residents in five years was created, with six municipalities certified as such zones.
- Under the advanced agriculture, forestry and fisheries robot research and development project based on the Fukushima innovation coast scheme, research and development on seedling-planting robots were implemented.
- Relevant government ministries provide information under the three pillars of informing, providing food and inviting.
- Total 54 countries and regions have introduced import measures on Japanese food following the nuclear power plant accident, 31 have eliminated them.

Farmland partition expansion in Sendai Higashi, Sendai City, Miyagi Prefecture

Before expansion（10-30 a partitions）→ After expansion（90 a - 1 ha partitions）



R&D targets under the advanced agriculture, forestry and fisheries robot R&D project based on the Fukushima innovation coast scheme

Seedling-planting robot

Assist power suit for farming

Removal or relaxation of import measures in major export destinations due to the Tokyo Electric Power Fukushima Daiichi Nuclear Power Plant accident (FY2018)

	Export destinations
Removal	New Caledonia (July), Brazil (August), Oman (December), Bahrain (March)
Relaxation	UAE (May), US (June, November), Singapore (July, March), Hong Kong (July), China (November), Russia (November)

Source: MAFF

2. Restoration/Reconstruction from Kumamoto Earthquake

- In the agriculture, forestry and fisheries area as one of the 10 top priority areas selected by the Kumamoto Prefecture government for a roadmap for restoration from the earthquake, restoration initiatives are promoted under the target of completing farming resumption in 2019. At the end of FY2018, 99.7% of farms seeking farming resumption had resumed farming.
- Under a creative reconstruction initiative, an infrastructure development project to promote the concentration of farmlands combined with the expansion of farmland partitions has been implemented for three districts.

Restoration status of Akitsu, Asodani, Otogase

District name	Project outline
Akitsu (Mashiki-cho, Kumamoto City)	Partition expansion combined with restoration of disaster-damaged farmlands including those hit by subsidence (district size: 172 ha)
Asodani (Aso City)	Partition expansion combined with restoration of disaster-damaged farmlands including those hit by cracks(district size: 63 ha)
Otogase (Minamiaso Village)	Partition expansion covering disaster-damaged farmlands (farmland development) (project coverage: 26 ha)

Source: Survey by Kumamoto Prefecture Agriculture, Forestry and Fisheries Department

FY2019 Measures for Food, Agriculture and Rural Areas

Summary

- Policy priorities, fiscal measures, legislative actions, tax measures, monetary measures, policy assessment

I. Measures to maintain and improve Japan's food self-sufficiency ration and potential

- Initiatives to maintain and improve Japan's food self-sufficiency ration and potential
- Measures to realize the production effort target for each major item

II. Measures for securing a stable supply of food

- Securing food safety compatible with international trends and securing consumer confidence
- Promotion of food and nutrition education by various people concerned, expansion of consumption of domestic agricultural products, and the preservation/succession of WASHOKU culture
- Exploration of demand through the creation of new values through production, processing and distribution stages
- Strategic exploration of global market
- Establishment of comprehensive food security compatible with various risks
- Strategic reactions to international negotiations

III. Measures for sustainable development of agriculture

- Development of/securing business farmers for realizing a strong and sustainable agricultural structure
- Development of an environment wherein female farmers can fully exert their potential capacity
- Consolidation of farmland to business farmers and securing farmland through full-capacity operation of the Public Corporations for Farmland Consolidation to Core Farmers through Renting and Subleasing (Farmland Banks)
- Promotion of the Farming Income Stabilization Measures for business farmers and implementation of the revenue insurance, etc.
- Development of an agricultural production base that contributes to the acceleration of structural reform and building national resilience
- Reform of production/supply systems compatible with changes in the demand structure, etc.
- Technological innovation, etc. at production/distribution sites for realizing cost reduction and high added value
- Promotion of environmental policy such as responses to climate change

IV. Measures for promotion of rural areas

- Maintenance/succession of local resources through steady promotion of the payment for activities to enhance multi-functionality, promotion of agriculture in hilly and mountainous areas, and performance of local community functions
- Creation of employment and income through active utilization of various local resources
- Exchanges between urban and rural areas and migration/settlement to rural areas through collaboration with various sectors

V. Measures for restoration/reconstruction from the Great East Japan Earthquake

VI. Measures for reorganization/restructuring of relevant bodies

VII. Matters necessary for comprehensively and systematically promoting measures for food, agriculture and rural areas

Definition

1. Confusing terms

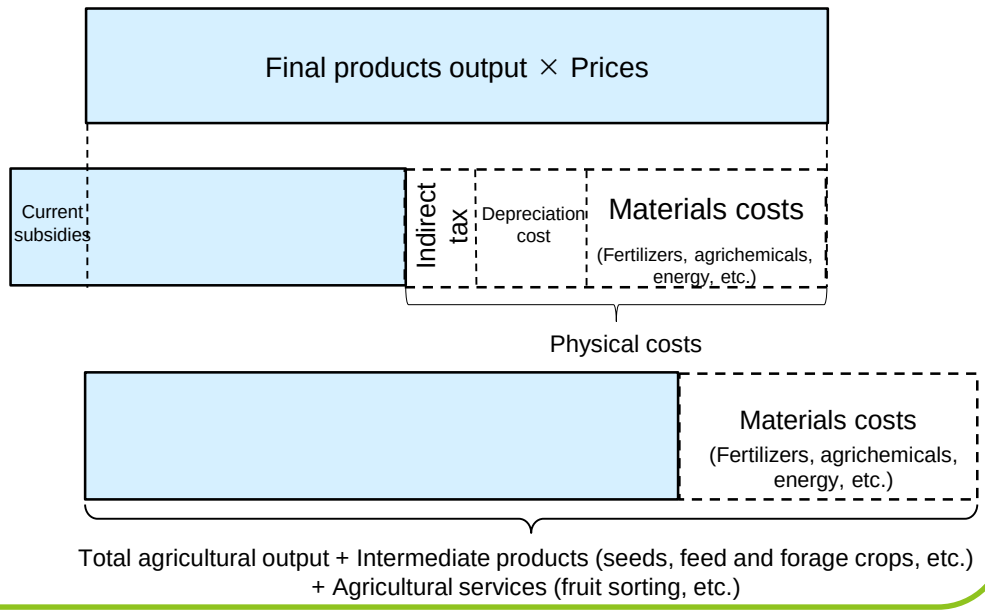
Production value, income

Purpose	Term	Statistical data <source>
To know the value of sales of agricultural products produced in Japan	Total agricultural output	**9.3 trillion yen (2017)** <Agricultural production income statistics>
To know the value added of agricultural products produced in Japan, or their sales value minus physical costs	Agricultural production income	**3.8 trillion yen (2017)** <Agricultural production income statistics>
To compare the value added by agriculture as part of gross domestic product (GDP) with values in other industries and foreign countries	Gross agricultural production	**5.4 trillion yen (2017)** <National accounts>

・Total agricultural output: 9.3 trillion yen

・Agricultural production income: 3.8 trillion yen

・Gross agricultural production: 5.4 trillion yen



Agriculture management entities

Purpose	Term	Statistical data <source>
To know the number of entities engaged in agricultural production or agricultural work under contract	Agriculture management entities*2	**1.22 million entities (2018)** < Survey on Movement of Agricultural Structure >
To know the number of households engaged in agriculture	Family management entities*1	**1.19 million entities (2018)** < Survey on Movement of Agricultural Structure >
To know the number of households producing mainly agricultural products for sales out of farm households	Commercial farm Households*2	**1.16 million households (2018)** < Survey on Movement of Agricultural Structure >
To know the number of agriculture business companies, community-based farm cooperatives, etc.	Organized management entities*1	**40,000 entities (2018)** < Survey on Movement of Agricultural Structure >

*1: See Definitions 2 (1)
*2: See Definitions 2 (2)

Farm households

Purpose	Term	Statistical data <source>
To know the number of all farm households including those producing agricultural products for their own consumption	Farm households*1	**2.16 million households (2015)** <Census of Agriculture and Forestry 2015>
To know the number of households producing agricultural products mainly for sales	Commercial farm households*1	**1.16 million households (2018)** < Survey on Movement of Agricultural Structure >
To know the number of households headed by less than 65-year-old persons whose main income is from agriculture	Business farm households*1	**0.25 million households (2018)** < Survey on Movement of Agricultural Structure >
To know the number of farm households having no non-agricultural job holders (without any age limit)	Full-time farm households*1	**0.38 million households (2018)** < Survey on Movement of Agricultural Structure >
To know the number of farm households including non-agricultural job holders (without any age limit)	Part-time farm households*1	**0.79 million households (2018)** < Survey on Movement of Agricultural Structure>
To know the number of farm households producing agricultural products mainly for their own consumption	Noncommercial farm households*1	**0.83 million households (2015)** <Census of Agriculture and Forestry 2015>

Members of commercial farm households

Purpose	Term	Statistical data <source>
To know the number of farm household members who worked as self-employed farmers for one day or more per year	Household members engaged in own farming*2	**2.88 million persons (2018)** < Survey on Movement of Agricultural Structure >
To know the number of farm household members who worked mainly as self-employed farmers (including housewives engaged mainly in housework and childcare, students, etc.)	Population mainly engaged in farming*2	**1.75 million persons (2018)** < Survey on Movement of Agricultural Structure >
To know the number of farm household members who usually worked mainly as self-employed farmers (excluding housewives engaged mainly in housework and childcare, students, etc.)	Core persons mainly engaged in farming*2	**1.45 million persons (2018)** < Survey on Movement of Agricultural Structure >

Employed farmers

Purpose	Term	Statistical data <source>
To know the number of persons employed as farmers for a long term (seven months or more)	Permanently hired worker on farm *2	**0.24 million persons (2018)** < Survey on Movement of Agricultural Structure >
To know the number of persons employed as farmers for a short term (temporarily)	Temporary hired worker on farm *2	**2.52 million persons (2018)** < Survey on Movement of Agricultural Structure >

*1: See Definitions 2 (2)
*2: See Definitions 2 (4)

2. Basic statistical terminology

(1) Classification of agriculture management entities (definitions used since the 2005 Census of Agriculture and Forestry)

Terminology	Definition
Agriculture management entities*	An establishment that either performs agricultural production directly or on contract and fulfills one of the following conditions: (1) manages 30 ares or more cultivated land, (2) possesses a planted area or cultivated area or a number of livestock being raised or delivered that is equal to or greater than a predetermined standard (e.g. 15 ares for outdoor grown vegetables, 350 square meters for vegetables grown in facilities, one cow), (3) accepts farm work on contract. (Censuses from 1990 to 2000 regard agriculture management entities as the combination of commercial farm households, agricultural holdings other than a farm household, and agricultural service enterprises.)
Family management entities	Individual management entities (farm household) or a single-household corporation (a farm household that is incorporated).
Organized management entities	Agriculture management entities that do not fall under family management entities.
Single farming entities	Entities whose main agricultural product sales account for more than 80% of income from all agriculture product sales.
Semi-multiple farming entities	Entities whose main agricultural product sales account for 60% to less than 80% of income from all agriculture product sales.
Multiple farming entities	Entities whose main agricultural product sales account for less than 60% of income from all agriculture product sales (excluding the management entities without any sales).

*"Agriculture management entities" is described as "Farms" in this annual report

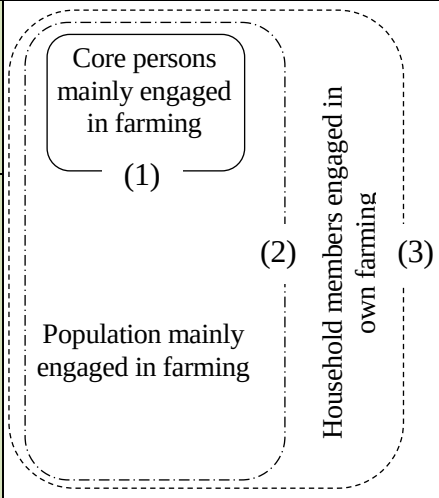
(2) Classification of farm households (definitions used since the 1990 World Census of Agriculture and Forestry)

Terminology	Definition
Farm household	Household engaged in farming and managing cultivated land of 10 ares or more, or earning more than 150,000 yen per year from sales of agricultural products.
Commercial farm household	Farm household managing cultivated land of 30 ares or more, or earning more than 500,000 yen per year from sales of agricultural products.
Business farm household	Farm household whose main source of income (50% or more) is farming, and which possess at least one family member under the age of 65 who is engaged in self-employed farming for more than 60 days a year.
Semi-business farm household	Farm household whose main income (50% or more) is from sources other than agriculture and which possess at least one family member under the age of 65 who is engaged in self-employed farming for more than 60 days a year.
Side-business farm household	Farm household without any members under the age of 65 engaged in self-employed farming for more than 60 days a year (farm households other than business and semi-business farm households).
Full-time farm household	A farm household without family members who are part-time farmers.
Part-time farm household	A farm household with one or more members who are part-time farmers.
Farm household earning main income from farming	A part-time farm household earning more income from farming than from others
Farm household earning main income from other jobs	A part-time farm household earning more income from non-farming jobs than from farming
Non-commercial farm household	A farm household managing cultivated land of less than 30 ares, and earning less than 500,000 yen per year from sales of agricultural products.
Agricultural holding other than farm household	A holding other than farm household managing cultivated land of 10 ares or more, or earning 150,000 yen or more per year from sales of agricultural products.
Agricultural service enterprise	An enterprise conducting farm work on contract (including enterprise other than agricultural holding, specializing in production and sale of seedlings).
Land tenure non-farm households	A household other than a farm household possessing 5 ares or more in cultivated land and abandoned cultivated land

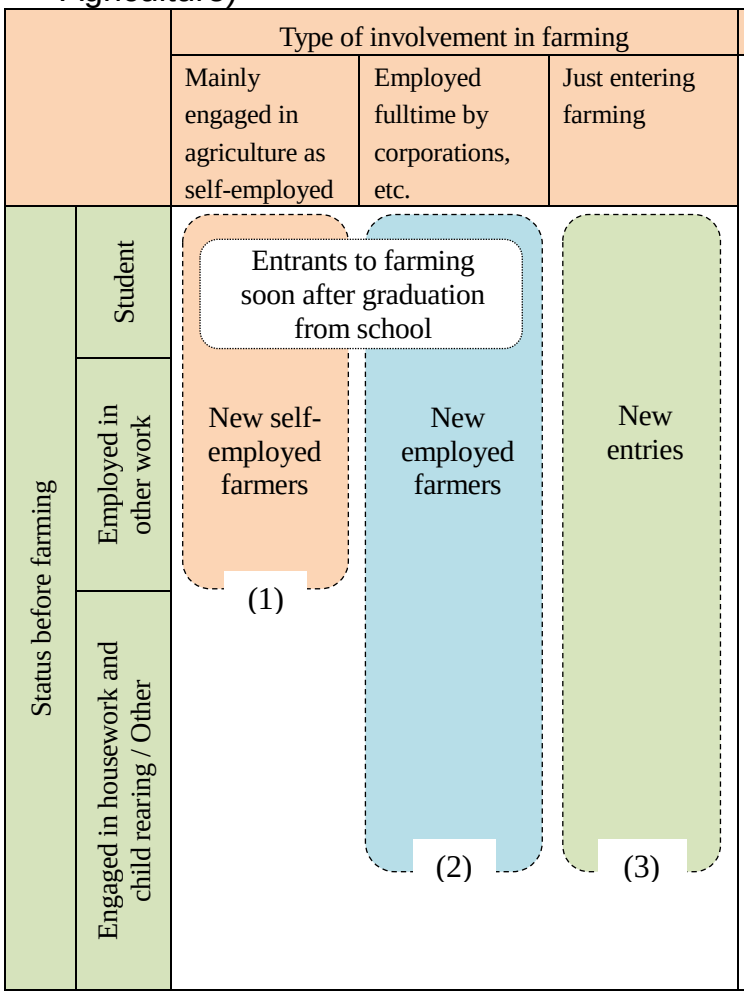
(3) Farm household economics

Terminology	Definition
Total income	Agricultural income + Income from agriculture-related production + Nonagricultural income + Income from pensions, etc.
Agriculture income	Gross agricultural income (total income from farming) – Agricultural expenditures (all expenses necessary for farming)
Income from agriculture-related production	Earnings from agriculture-related production (earnings from businesses such as agricultural processing, farm-inns, restaurants and tourist farms, which are related to agriculture and managed by individuals engaged in farming) – Expenditures from agriculture-related production (expenditures such as labor and material costs required for the aforementioned businesses)
Non-agriculture income	Non-agriculture earnings (e.g. earnings from independent part-time nonagricultural businesses, salaries and wages) – Non-agriculture expenses (e.g. expenses for independent part-time non-agricultural businesses, transportation expenses for commuting)
Production cost	The production cost is the total cost (combining property and labor costs) for production of farm products minus by-product values.
Material cost	Liquid goods costs (seeding, fertilizers, agricultural chemicals, heating, lighting, power and other materials costs) + Depreciation costs for fixed goods (depreciable assets including buildings, automobiles, agricultural machines and production management equipment)
Family labor cost	The family labor cost is calculated by multiplying family working hours by an average hourly wage as computed based on wage data for business establishments with five to 29 workers in the construction, manufacturing and transportation/postal industries in the Monthly Labor Survey Report (by the Ministry of Health, Labor and Welfare).
Equity capital interest	The equity capital interest is calculated by multiplying equity capital – gross capital minus debt capital – by an annual interest rate of 4%.
Rent for owned land	The rent for owned land is based on a rent for similar farmlands (having capabilities similar to the farmland for a crop subject to the survey) within the same region.

(4) Agricultural labor by farm household members

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Involvement in farming</td><td rowspan="2">Household member</td></tr>
<tr><td>Engaged only in farming</td><td>Engaged in both farming and other
Mainly farming | Mainly other</td><td>Not engaged in farming</td></tr>
<tr><td rowspan="2">Status during regular hours</td><td>Engaged mainly in work</td><td colspan="3" rowspan="2"> 
</td><td rowspan="2">As a rule, people who live and earn a living together
(1) Core persons mainly engaged in farming
Among household members involved in self-employed farming (population engaged mainly in farming), those who are working mainly in agriculture during regular hours.
(2) Population mainly engaged in farming
Persons engaged only in self-employed farming, or persons who are also engaged in work other than farming but spend more time engaged in farming on a yearly basis.
(3) Household members engaged in own farming
Household members 15 years old and over who are engaged in self-employed farming for more than one day per year.
- Full-time farmers
Among persons engaged in mainly farming, those who are engaged in self-employed farming for more than 150 days per year</td></tr>
<tr><td>Other (housework and school, etc.)</td></tr>
<tr><td colspan="2">Permanently hired worker on farm</td><td colspan="4">Refers to workers hired mainly for farm management with an employment agreement (including verbal agreement) covering a period of seven months or more (including the workers hired regardless of an employment period).</td></tr>
<tr><td colspan="2">Temporary hired worker on farm</td><td colspan="4">Refers to Day and/or seasonal workers hired on a temporary basis for farm management (including mutual help among farm households (labor exchange) and assistants (labor accepted for free)), but not including the laborers employed under a partial farm work contract.
It includes cases in which workers are hired mainly for non-farm management work but engaged in farm management during the busy season, as well as those who had an employment agreement for longer than seven months but quit before reaching seven months.</td></tr>
</table>

(5) Newcomers in agriculture (definition used in the survey on Newcomers in Agriculture)



Newcomers in agriculture

Defined as individuals who fulfill one of the following conditions:

(1) New self-employed farmers

Members of family management entities whose living status has changed anytime within a year of the survey date from “student” or “employed in other work” to “new graduate who has become a farmer” or “a new farmer who changed occupations”.

(2) New employed farmers

Persons engaged in farming who have been hired by corporations anytime within a year of the survey date and work for their employers for 7 months a year or more.

(3) New entries

Persons responsible for farming started anytime within a year of the survey date by securing land and funds on their own, and their partners

- Entrants to farming soon after graduation from school

New self-employed farmers who have changed their status from “student” to “engaged mainly in farming”, as well as new employed farmers who were recently students.

(6) Classification of agriculture area

Terminology		Definition
Classification of agriculture area		Classification of present and former cities, wards, towns, and villages (hereinafter referred to as "municipalities") based on fundamental conditions (e.g., cultivated, forest and grazing land shares, farmland gradients) that define the structure of regional agriculture
	Category	Standard index (fulfills one of the following conditions)
	Urban area	- Present and former municipalities where the DID's share of habitable land is 5% or more with a population density of 500 persons per square kilometer or more or a DID population of 20,000 or more. - Present and former municipalities where the residential area's share of habitable land is 60% or more with a population density of 500 persons per square kilometer or more. Regions with forest and grazing land's share of 80% or more are excluded.
	Flat farming area	- Present and former municipalities where cultivated land accounts for 20% or more of the total area with forest and grazing land accounting for less than 50% of the total area. However, areas where all paddy fields with gradients of 1/20 or more and all upland fields with gradients of 8° or more account for 90% or more of the total area are excluded. - Present and former municipalities where cultivated land accounts for 20% or more of the total area, with forest and grazing land accounting for 50% or more of the total area and with all paddy fields with gradients of 1/20 or more and all upland fields with gradients of 8° or more accounting for less than 10% of the total area.
	Hilly farming area	- Present and former municipalities where cultivated land accounts for less than 20% of the total area, other than urban and mountainous farming areas. - Present and former municipalities where cultivated land accounts for 20% or more of the total area, other than urban and flat farming areas.
	Mountainous farming area	- Present and former municipalities where forest and grazing land accounts for 80% or more of the total area, with cultivated land accounting for less than 10% of the total area.

Notes: 1) Order of priority: Urban area → Mountainous farming area →Flat and hilly farming area
2) As a rule, DID (Densely Inhabited Districts) are defined as areas where basic district units, as defined by the national census, with populations densities of 4,000 per km2 or more are adjacent to each other and the total population of these conjoined districts is 5,000 or more.
3) Gradient refers not to the gradient of cultivated land per parcel, but to the main topographical gradient as grouped land.
4) The combination of the hilly and mountainous farming area categories is referred to as hilly and mountainous area.
5) Former municipalities are those that were classified as of February 1, 1950.

(7) Agricultural regions nationwide

Agricultural region	Prefecture	Agricultural region	Prefecture
Hokkaido	Hokkaido	Kinki	Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama
Tohoku	Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima	Chugoku Sanin Sanyo	 Tottori, Shimane Okayama, Hiroshima, Yamaguchi
Hokuriku	Niigata, Toyama, Ishikawa, Fukui	Shikoku	Tokushima, Kagawa, Ehime, Kochi
Kanto/Tosan Northern Kanto Southern Kanto Tosan	 Ibaraki, Tochigi, Gunma Saitama, Chiba, Tokyo, Kanagawa Yamanashi, Nagano	Kyushu Northern Kyushu Southern Kyushu	 Fukuoka, Saga, Nagasaki, Kumamoto, Oita Miyazaki, Kagoshima
Tokai	Gifu, Shizuoka, Aichi, Mie	Okinawa	Okinawa

3. Basic Terminology

A	
AFFrinnovation	AFFrinnovation which means initiatives for agriculture, forestry and fisheries operators to voluntarily cooperate with others to comprehensively and integrally promote agriculture, forestry and fisheries as the primary industry, manufacturing as the secondary industry and retailing as the tertiary industry to utilize regional resources for producing new added value.
African swine fever	African swine fever is an infectious disease caused by African swine fever virus for swine and wild boars. It is a highly fatal disease featuring fever and whole-body hemorrhagic lesions. There is no effective vaccine against the disease. It is seen chronically in Africa and has been identified in Russia and its vicinity. In August 2018, China became the first Asian country to identify an African swine fever epidemic. Japan has remained free from the disease, having identified no epidemic. It infects swine and wild boars but not humans.
Agricultural irrigation facilities	These facilities are roughly divided into two types -- irrigation facilities for providing irrigation water for farmlands and sewerage facilities for discharging surplus surface and soil water at farmlands. Irrigation facilities include dams and other water storage facilities, water intake facilities such as weirs, drains, pumping facilities, circular tank diversion works, farm ponds and other water supply and distribution facilities. Sewerage facilities include drainage canals and drainage pump stations. In addition, there are water control facilities to monitor, control and operate irrigation and sewerage facilities.
AI	AI stands for artificial intelligence, referring to computer systems that have human intelligence functions including learning, inference and judgment.
ASEAN	ASEAN stands for the Association of Southeast Asian Nations. ASEAN was established in the Thai capital of Bangkok in 1967 for cooperation in addressing the promotion of economic growth, and social and cultural development, the achievement of political and economic stability and other challenges in Southeast Asia. Upon its establishment, it consisted of five countries -- Indonesia, Malaysia, the Philippines, Singapore and Thailand. Brunei acceded to ASEAN in 1984, Vietnam in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. ASEAN now thus comprises 10 countries. Prompted by the 1997 Asian currency crisis, Japan, China, South Korea and ASEAN have formed the ASEAN+3 framework for cooperation in East Asia.
B	
BCP	BCP stands for business continuity plan, meaning a plan to secure the continuation of key operations even in the event of risks such as disasters. It is also a peacetime plan to strategically prepare for restoring key operations within a target time and minimizing risks even if business operations are suspended.
Big data	Big data represent a massive, structurally complex data group that has the potential to produce new values through analysis of relationships between data.
Biomass	Biomass means organic resources of flora and fauna origin, excluding fossil resources. Biomass is made by organisms that create organic matter from inorganic water and CO2 through photosynthesis using solar energy falling on the earth. This type of resources is renewable throughout its life cycle as long as there are organisms and solar energy.
Business plan approved under the AFFrinnovation Act	These business plans are for agriculture, forestry and fishery business operators to integrate the production of agriculture, forestry and fisheries products and by-products (including biomass) with their processing or sales to improve their operations under the Act on Promotion of the "Sixth Industry" to Create New Value Added Using Agricultural Products in Rural Areas (AFFrinnovation Act).
C	
Calorie supply (Calorie intake)	Calorie supply refers to the total amount of calories from food that is supplied to the public, and calorie intake refers to the total amount of calories actually consumed by the public. As a rule, the value for calorie supply is taken from the Food Balance Sheet issued by the

	Ministry of Agriculture, Forestry and Fisheries, while the value for calorie intake is taken from the National Health and Nutrition Examination Survey issued by the Ministry of Health, Labor and Welfare. Although it is necessary to keep in mind that calculations for both values are entirely different, since the calorie supply value includes leftovers and food destroyed in the distribution stage, the difference between this value and calorie intake can be used as an approximate measure of food wastes including food residue emerging inevitably in food industry processes, home food leftovers, etc.
Certified farmer (system)	The certified farmer system certifies plans for improving agricultural management drafted by farmers to attain targets for efficient and stable farm management in basic plans prepared by municipal governments to meet their respective conditions under the Agricultural Management Framework Reinforcement Act. For certified farmers, or those whose plans have been certified, various measures are primarily implemented, including low interest financing from the Super L loan system and other programs, measures to facilitate farmland consolidation and infrastructure improvement efforts to support business farmers.
Classical swine fever	Classical swine fever is an infectious disease caused by swine fever virus for swine and wild boars. It develops symptoms such as fever, anorexia and prostration, featuring strong propagation and high fatality. The disease is still seen in the world including Asia. Japan achieved the elimination of the disease in 2007 before finding its first epidemic in 26 years in September 2018. The disease infects swine and wild boars but not humans.
Codex Alimentarius Commission	The Codex Alimentarius Commission is an international intergovernmental organization created by the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) in 1963 to secure the protection of consumer health and fair food trade. It develops the Codex Alimentarius. Japan joined the commission in 1966.
Community based farm cooperatives	Farm cooperatives consist of farming households in certain regions that have developed relations through local communities or other geographical bases. Cooperative member households conduct joint agricultural production. These cooperatives' forms and operations vary depending on regional conditions. Their operations range from the aggregation of diverted paddy fields and the communal use of communally purchased machines to joint production and sales in which farming leaders play a central role.
Crop condition index	The index indicates rice crop conditions, taking the form of a percentage ratio of a (forecast) yield per 10 ares to a standard yield per 10 ares. The standard yield is a yield anticipated before annual planting, based on average-year meteorological conditions and disaster incidence, the recent advancement of cultivation technologies and the recent actual yield trend.
Cross-ministerial Strategic Innovation Promotion Program (SIP)	This is a program for the Council for Science, Technology and Innovation established at the Cabinet Office to allocate budgets for initiatives covering from basic research to exits (practical application or commercialization) beyond the bounds of ministries and fields and promote them. SIP stands for Cross-ministerial Strategic Innovation Promotion Program.
D	
Dilapidated farmland	A dilapidated farmland is a farmland that has been left uncultivated and dilapidated due to the abandonment of cultivation and is viewed objectively as unable to be used for growing crops with conventional farming methods.
Direct seeding (rice)	Direct seeding, where rice seeds are directly scattered into paddies, can skip seedling-raising and transplanting steps required for the conventional practices including transplanting. There are various direct seeding methods, which are roughly divided into two groups – flooded direct seeding where seeds are scattered into flooded paddies after plowing and soil pudding, and dry direct seeding where seeds are scattered into non-flooded paddies.
E	

Ecofeed	Ecofeed is feed that makes effective use of food residual, etc., representing a combination of ecological or economical and feed.
EPA/FTA	EPA stands for Economic Partnership Agreement and FTA for Free Trade Agreement. An FTA is a treaty between particular countries or regions created for the purpose of reducing and repealing tariffs on goods and services trade barriers. An EPA is a treaty that adds rules on investment and protection of intellectual property to the basic contents of an FTA in order to enhance a wider range of economic relations. Under the General Agreement on Tariffs and Trade (GATT), member countries are allowed to liberalize trade with EPA or FTA partners as an exception to most-favored nation status on the following conditions: (1) "abolishment of tariffs and other restrictive trade regulations" for "essentially all trade", (2) abolishing such practices within a reasonable time frame (as a rule, within 10 years), and (3) refraining from enhancing tariffs and other trade barriers for nations other than EPA or FTA partners (under Article 24 and other sections of the General Agreement on Tariffs and Trade).
Externalization of diet	Against the backdrop of increasing double-income and single-member households, population aging and diversified lifestyles, people have tended to depend on non-home cooking and meals. Amid the tendency, the food industry has provided home-meal replacements such as prepared food, ready-made dishes and boxed lunches and explored their markets. This trend is called the externalization of diet. → See "home meal replacement."
F	
Family business agreement	A family business agreement is a written arrangement that clarifies business plans, each family member's role, working conditions, etc. for a farming family based on talks between family members. This agreement clarifies the roles of farming family members including women and successors, allowing a farming family to become subject to the preferential treatment of farmer annuity insurance premiums and file joint applications for the certified farmer system.
Farmland concentration and intensification	Farmland concentration means owning or leasing farmland to expand farmland for utilization. Farmland intensification means exchanging farmland use rights to allow farming to be conducted continuously without difficulty.
FGAP	FGAP (Fukushima GAP) is a system developed by Fukushima Prefecture in conformity with MAFF's guideline on a common GAP (Good Agricultural Practices) base, providing details of radioactive material measures as the prefecture's original standard.
Food security	As for food security in Japan, the Food, Agriculture and Rural Areas Basic Act states, "Even in the case that domestic supply is insufficient to meet demand or is likely to be for a certain period, due to unexpected situations such as a bad harvest or interrupted imports, the minimum food supply required for the people shall be secured in order not to be a hindrance to the stability of peoples' lives and smooth operation of the national economy." As for global food security, meanwhile, the Food and Agriculture Organization (FAO) states, "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." This widely accepted definition points to the following dimensions of food security: the availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (food availability), the legal, political, economic and social entitlements of individuals to access foods for a nutritious diet (food access), utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met (utilization), and stable access to adequate food at all times for a population household or individual (stability).
Food self-sufficiency potential	This concept expresses the potential capacity of food production in the Japanese agriculture, forestry and fisheries sectors. The components of the food self-sufficiency

	potential for agricultural production are agricultural resources such as farmland and irrigation systems, agricultural technology, and people engaged in farming. The components of the food self-sufficiency potential for fishery production are potential production volume and people engaged in fishery. ○ "Food self-sufficiency potential indicator" Based on the premise that farmlands are fully utilized and calorie efficiency is maximized, this indicator shows the amount of calories which could be supplied per person per day in the Japanese agriculture, forestry and fisheries sector. The indicator is comprised of the following four patterns. (Pattern A) When major grains such as rice, wheat and soybeans are mainly cultivated by maximizing the calorie efficiency with certain consideration to nutritional balance (Patten B) When major grains such as rice, wheat and soybeans are mainly cultivated by maximizing the calorie efficiency (Pattern C) When potatoes are mainly cultivated by maximizing the calorie efficiency with certain consideration to nutritional balance (Pattern D) When potatoes are mainly cultivated by maximizing the calorie efficiency
Food self-sufficiency ratio	This index indicates how much food for domestic consumption is being supplied by domestic sources. - Self-sufficiency ratio for individual items: The following equation is used to calculate the self-sufficiency ratio on a weight basis for individual items Food self-sufficiency ratio calculation equation $$\text{Self-sufficiency ratio for individual items} = \frac{\text{Domestic production volume}}{\text{Supply for domestic consumption}}$$ $$= \frac{\text{Domestic production volume}}{\text{Domestic production volume} + \text{Import volume} - \text{Export volume} \pm \text{Fluctuations in inventory}}$$ - Total food self-sufficiency ratio: This ratio is an index for the total volume of food, and is expressed in both calorie basis and production value basis. Products made from domestic livestock raised with imported feed are not included in calculations. - Total food self-sufficiency ratio on calorie supply basis: Weight values for each item are converted to calories using the *Standard Tables of Food Composition in Japan* - 2015 - (Seventh Revised Edition), after which the calories of all items are totaled. This is equivalent to the ratio calculated by dividing the value for the sum of the domestic calorie supply per person per day by the value for the calorie supply per person per day. - Total food self-sufficiency ratio on production value basis: Weight values are converted to production values using farm gate prices and import prices from domestic agricultural price and trade statistics, after which all production values are totaled. This is equivalent to the ratio calculated by dividing the sum of the domestic production value of food by the total food supply value for domestic consumption - Feed self-sufficiency rate: This index indicates the percentage share of domestic feed (excluding feed produced with imported materials used) in feed supplied to livestock, calculated in terms of total digestible nutrients (TDN) based on the *Standard Tables of*

	Feed Composition in Japan (2009).
G	
GAP	Good Agricultural Practices (GAP) are management activities in the agricultural production process to ensure various components of sustainability including food safety, environmental conservation and worker safety.
Genetic resources	Genetic resources are materials from all living things including plants, animals, and microorganisms that have actual or potential value. For example, they include crops used as materials for breeding (including not only the latest varieties but also old varieties and those that are not clearly useful but considered potentially useful.)
GFSI	GFSI stands for Global Food Safety Initiative, referring to an organization of globally operating food companies for implementing various initiatives to improve food safety and enhance consumer confidence in food products. It was established in May 2000 as a subsidiary of the Consumer Goods Forum (CGF), an international organization of about 400 manufacturers, retailers and service providers from 70 countries.
GLOBALG.A.P.	GLOBALG.A.P. is a GAP certification program established by Germany's FoodPLUS GmbH. Its fruit and vegetables standard and aquaculture standard are GFSI-recognized. This program has been diffused mainly in Europe.
GNSS/GPS	GNSS stands for Global Navigation Satellite System, referring to a positioning system that uses satellites to accurately locate any position in the world. GPS stands for Global Positioning System as one of the GNSS systems.
Greenhouse gas (GHG)	Greenhouse gases heat the earth's surface by absorbing and radiating a portion of infrared radiation reflected from the ground. The Kyoto Protocol designates carbon dioxide (CO_2), methane (CH_4, generated by rice paddies and final waste disposal sites), dinitrogen monoxide (N_2O, generated during the process of manufacturing some raw ingredients for chemical products and from livestock waste), hydrofluorocarbons (HFCs, used as coolants for air conditioning devices), perfluorocarbons (PFCs, used in the production of semiconductors), sulfur hexafluoride (SF_6, used in the production of semiconductors) and nitrogen trifluoride (NF_3, used in the production of semiconductors; added in the second commitment period) as greenhouse gases that should be reduced.
H	
HACCP	HACCP (Hazard Analysis and Critical Control Point) is a management system in which food safety for each process is addressed through the analysis and control of biological, chemical and physical hazards by continually monitoring and recording to guarantee the CCPs in control.
Highly Pathogenic Avian Influenza (HPAI)	Highly Pathogenic Avian Influenza (HPAI) is a kind of Avian Influenza that is highly fatal to poultry. When poultry are infected with HPAI, they show general symptoms such as neurological, respiratory and digestive ones, and many of them die. In Japan, there hasn't been any case where humans were infected with HPAI through eating of eggs or chicken meat.
Home meal replacement	Home meal replacements are between eating out at restaurants and preparing meals at home. They include commercially sold lunch boxes, ready-to-eat dishes and foods cooked and processed outside of the home that are consumed without being cooked or heated at school or at the workplace. These meals are perishable.
I	
Idle farmland	An idled farmland meets either of two provisions in Item 1, Article 32, Agricultural Land Act. The first provision cites a farmland that is unused for cultivation and is expected to remain unused for the purpose. The second cites a farmland that is used far less than other farmlands in the vicinity.
Import tolerance	Import tolerance is the maximum residue limit set for importing agricultural products using chemicals for which countries or regions importing the products have no such limit in the absence of their domestic registration.

IoT	IoT stands for Internet of Things, meaning that various things in the world are connected through the internet to exchange information for automatic recognition, automatic control, remote control, etc.
J	
JGAP/ASIAGAP	Both JGAP and ASIAGAP are GAP certification programs established by the Japan GAP Foundation with third-party audit. JGAP covers fruit and vegetables, grains, tea, and livestock, while ASIAGAP covers fruit and vegetables, grains and tea. ASIAGAP was recognized by GFSI in October 2018.
L	
Local consumption of local products	This is an initiative for agriculture, forestry or fishery products (limited to food products) produced in domestic regions to be consumed in those regions. The initiative contributes to improving the food self-sufficiency ratio and to promoting AFFrinnovation through farmer's market and processing operations.
N	
NPO	NPO stands for non-profit organization. These organizations perform various activities to contribute to society and do not distribute profits to their members. NPOs are expected to play an important role in responding to diversified needs of society in various areas (including welfare, education, culture, community building, ecology and international cooperation). Organizations that have been incorporated through the Act to Promote Specified Nonprofit Activities are called corporations engaging in specified non-profit activities and are allowed to open bank accounts and lease office spaces under their respective organization titles.
O	
OIE	OIE stands for Office International des Epizooties in French. In English, it is called the World Organization for Animal Health. It is an intergovernmental organization founded in 1924 to improve animal health. As of the end of May 2018, the number of OIE member countries and regions stands at 182. Japan acceded to the OIE in 1930. The OIE conducts animal health, food safety, animal welfare and other operations, handling mammals, avian species, bees, fishes, shellfishes, mollusks, amphibian species and reptiles.
R	
Replotted land	Replotted land is land deemed as land before readjustment or development (traditional land) under the allocation of replotted land for a project to readjust land or develop farmland to change farmland boundaries and shapes. The allocation of replotted land is an administrative action to fix new land after readjustment or development (replotted land) replacing land before readjustment or development (traditional land) and take some legal procedures to deem the replotted land as land before readjustment or development (traditional land).
Rural community	The rural community is a fundamental regional unit where households are connected by local and family ties for farming or utilization of farming water in some municipal localities. These communities have close relationships for a wide range of activities including maintenance and management of irrigation facilities, use of farming equipment, and marriages and funerals. They have developed many characteristic traditions and function as autonomous or administrative units.
S	
Sustainable development goals (SDGs)	Sustainable development goals (SDGs) are the entire international community's development goals for 2030, adopted unanimously at a United Nations summit in September 2015. There are 17 SDGs including those for the eradication of famine and poverty, economic growth and employment, and climate change countermeasures. The SDGs are non-binding goals urging each country to take voluntary actions commensurate with its conditions. Japan created the SDGs Promotion Headquarters under a Cabinet decision in May 2016 to implement the SDGs. The headquarters decided on the SDGs Implementation Guideline

	spelling out Japan's vision and priorities for implementing the SDGs in December 2016 and the SDGs Action Plan 2018 including the direction and major initiatives for providing Japan's SDGs models in December 2017. SDGs stands for "sustainable development goals."
T	
TMR center	TMR stands for total mixed ration, a cow feed into which roughage, concentrated feed and additives are mixed in a well-balanced manner. A TMR center is an organization that produces TMR for supply to livestock farms.
V	
Value chain	A value chain is a process of adding value at each step of production, processing, distribution and sales that are organically connected to each other.
W	
"WASHOKU; traditional dietary cultures of the Japanese"	In December 2013, the United Nations Education, Scientific and Cultural Organization registered "WASHOKU; traditional dietary cultures of the Japanese" as a UNESCO Intangible Cultural Heritage. "WASHOKU" is the Japanese diet practice based on the Japanese people's spirit of "respecting nature," featuring (1) various fresh ingredients and respect for their natural flavors, (2) a nutritional balance that supports healthy diets, (3) emphasis on the beauty of nature and seasonal changes in the presentation, and (4) deep ties to New Year's and other regular annual events.
WCS rice	WCS stands for whole crop silage, meaning a feed that is made by harvesting berries, stems and leaves integrally for lactic fermentation. WCS rice is produced for WCS for livestock, contributing to the effective utilization of rice paddies and the improvement of the feed self-sufficiency ratio.
WTO	The World Trade Organization (WTO) is an international organization established in January 1995 as a result of the Uruguay Round negotiations, which has dealt with the global rules of trade. The WTO is aimed at securing that trade flows as smoothly as possible by lowering trade barriers through negotiations among member governments. The WTO is a forum for governments to negotiate trade agreements and settle trade disputes. The headquarters is located in Geneva, Switzerland.

4. Multifunctional roles of agriculture, forestry and the fisheries

(1) Agriculture

Flood prevention by retention and storage of rainwater	Function to prevent/alleviate flood by temporarily collecting rainwater in paddy fields surrounded by ridges and cultivated field soil.
Landslide prevention	Function to prevent slope failure by detecting and repairing the failure of farmlands at an early stage through agricultural production activities in sloping farmlands, or to prevent landslides by holding down sudden rises in the groundwater level by allowing rainwater to permeate slowly underground through the cultivation of fields.
Soil erosion prevention	Function to prevent the erosion of soil caused by rainwater and wind, with the surface of water covering paddy fields or with the foliage and stems of crops in fields.
Water recharge	Rainwater and agricultural water for paddy fields seep underground and over time returns to the river, and water that seeps further below cultivates underground watersheds.
Water purification	Water purification is achieved the decomposition of organic material in paddy and dry fields, the absorption of nitrogen by crops, and the removal of nitrogen by microorganisms.
Decomposition of organic waste	Microorganisms within paddy and dry fields such as bacteria decompose livestock waste and compost made from household waste. The decomposed material is

	eventually reabsorbed by crops.
Climate mitigation	Crops growing on cropland absorb heat through transpiration and paddy fields absorb heat through water evaporation, resulting in lower climate temperatures.
Conservation of biodiversity	Rice paddies and upland fields are properly and sustainably managed to form and maintain a secondary natural environment with ecosystems rich in plants, insects and animals, etc. to secure biodiversity.
Formation of a good landscape	Agricultural activities combined with farmland, old farmhouses, surrounding water sources and mountains create attractive natural landscapes.
Maintenance of cultural tradition	Japan features many annual events and festivals which trace their origins to prayers for rich harvests. Agriculture plays a role in passing on these traditions to future generations.

(2) Forestry

Conservation of biodiversity	Forests inhabited by a wide variety of plants and animals contribute to conserving the diversity of genes, species and ecosystems.
Conservation of the global environment	Forests can adjust the natural environment on a global scale through transpiration and absorption of CO_2 which causes global warming.
Prevention of landslide disasters and conservation of soil	Brush, fallen leaves and branches suppress soil erosion, and the network of roots from forest trees prevents landslides.
Watershed capabilities	Forest soil mitigates floods and stabilizes river flow by storing rainwater and moderating the volume of water running into rivers.
Formation of comfortable environments	Forests help form comfortable environments by moderating climate through transpiration, reducing wind shear and noise, adsorbing dust through tree crowns and alleviating the heat island phenomenon.
Benefits for health and recreation	Trees release volatile substances such as phytoncides that are known to directly improve health, and forests provide areas for sports and leisure.
Culture	As a foundation for the succession of culture and traditions, forest scenery plays a vital role in the shaping of the traditional Japanese outlook on nature, and they also provide a place for forest environment education and practical learning.
Material production	The ability of forests to produce a wide variety of materials including wood, extracts and various types of fungi

(3) Fisheries

Supplementary contributions of fishery to the nitrogen and phosphorus cycle	An appropriate level of fishery can help recycle nitrogen and phosphorus absorbed by marine wildlife through the food chain to land.
Conservation of coastal environments	Bivalve shellfish such as oysters and clams filter and purify seawater by feeding on organic suspension such as plankton
Water purification	Mudflats and seaweed beds, and plants and animals that inhabit them purify seawater by decomposing organic matters, absorbing nutrient salts and carbon dioxide gas, and supplying oxygen.
Preservation of ecosystems	Appropriate fishery operations can contribute to preserving mudflats, seaweed beds and other ecosystems that provide inhabitation environments for a wide variety of water creatures.
Transfer of cultural assets such as traditional fishing practices	Cultural assets such as traditional fishing practices are passed down to future generations through the activities of people living in fishing villages.
Rescue operations in the	Fishery workers help emergency rescue operations when ships sink, capsize, become

event of marine emergencies	stranded, go adrift, collide or catch fire.
Rescue operations in the event of disasters	Fishery workers conduct emergency operations such as supply transportation and oil recovery during natural catastrophes, oil tanker accidents and other disasters.
Monitoring of coastal environments	The fisheries monitor abnormalities in coastal environments. For example, fishery workers assist in early detection of red tides, blue tides and jellyfish outbreaks.
Border monitoring	Activities to monitor illegal poaching of precious marine resources also protects the national interest by preventing smuggling and illegal immigration.
Functions related to providing places for exchange	The mariner industry can provide places for leisure such as marine recreation facilities and places to learn the importance of nature.