

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

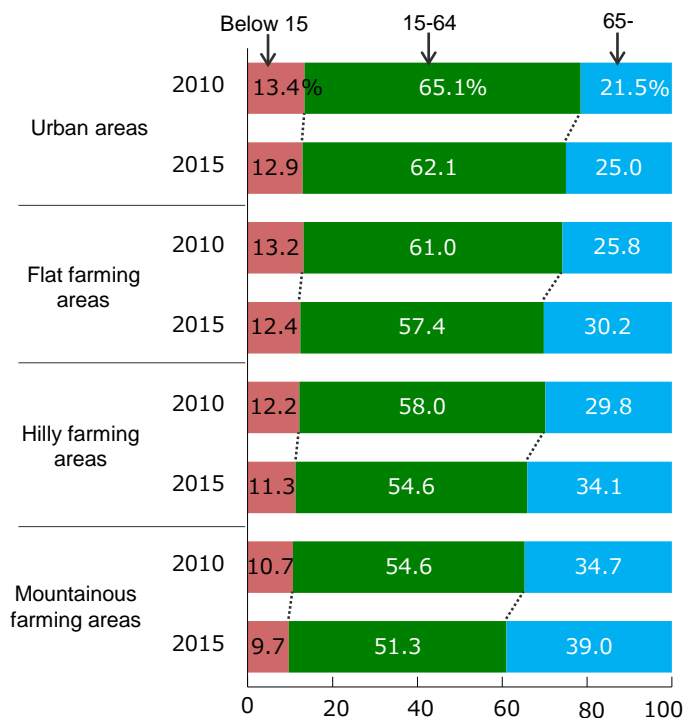
## 1. Initiatives responding to social changes

- 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 Senmida (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.

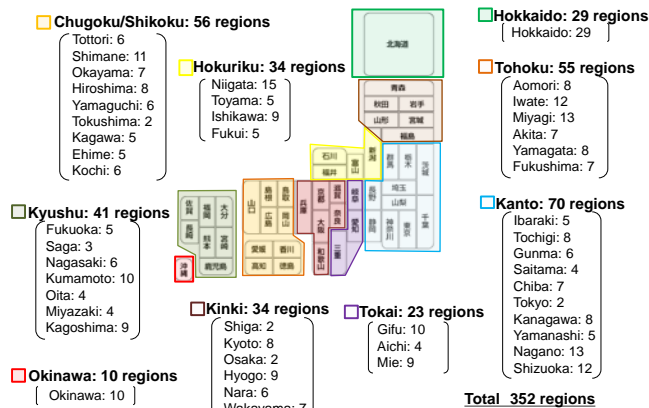


"Guideline for promoting rice terraces as killer content"

## 3. Promoting Countryside Stay

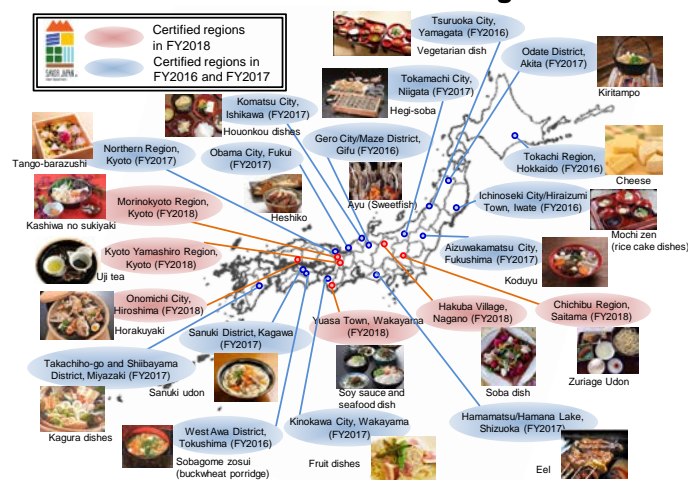
- Countryside Stay represents long-stay tours in which tourists experience traditional Japanese lives and enjoy exchanges with farmhouse and other local residents in rural areas.
- Inbound travel demand has robustly expanded. Foreigners staying in rural areas account for more than 40% of foreign-tourist 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



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

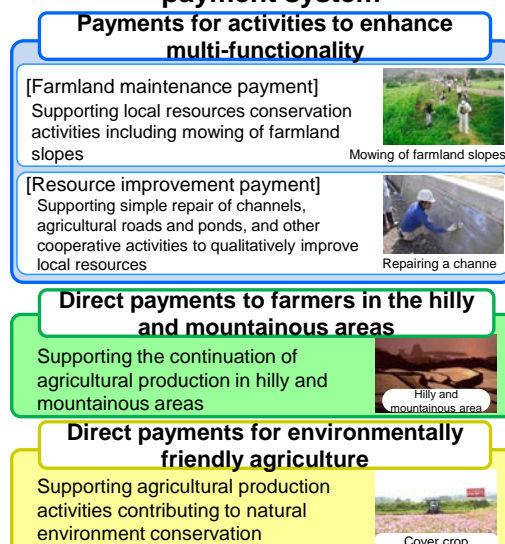
### SAVOR JAPAN Certified Regions



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

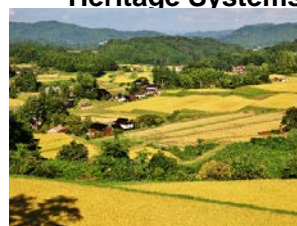
- All Japanese citizens benefit from the effects of agriculture's and rural areas' multifunctional roles including land conservation.
- The Japanese agricultural direct payment system supports local activities to maintain and demonstrate the multifunctional roles.
- The payment for activities to enhance 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 PrefectureMogami 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.

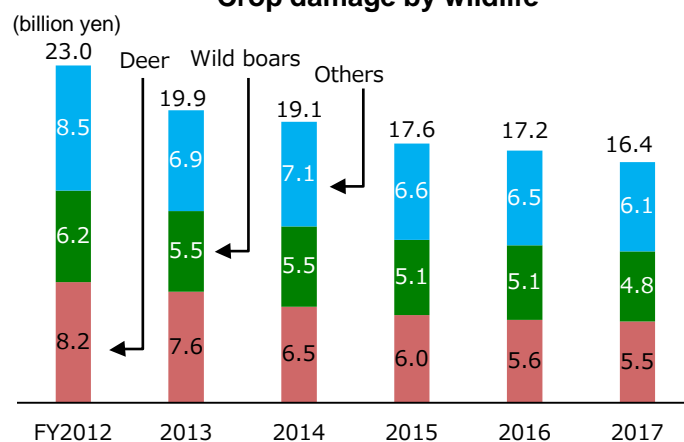
At the end of April 2018, 1,479 municipal governments had developed wildlife damage prevention plans.

- 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

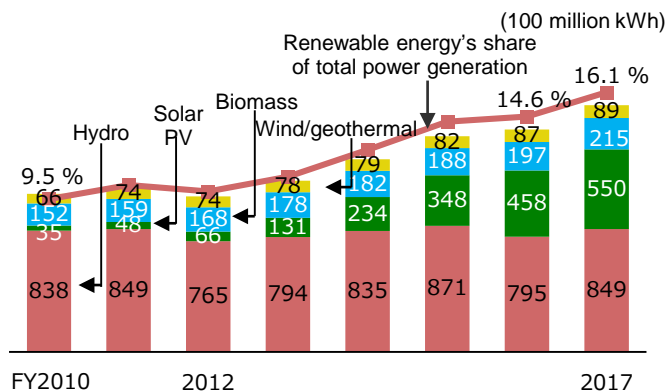




## 6. Utilizing renewable energy

- 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

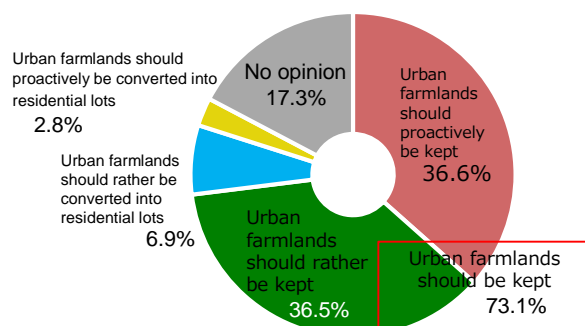


Source: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry "Comprehensive Energy Statistics"

## 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 be 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)

# 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

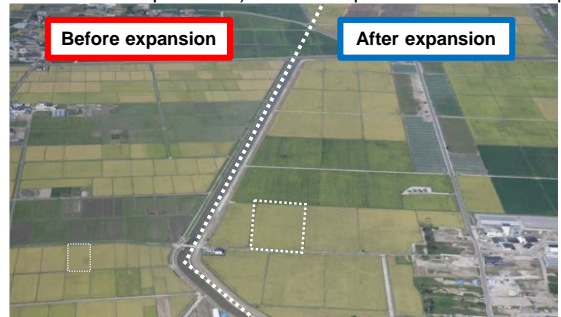
- At the end of January 2019, tsunami-damaged farmlands totaling 18,150 ha were available for resuming farming, accounting for 92% of farmlands subjected to restoration.
- In Iwate, Miyagi and Fukushima Prefectures, farmland partitions have been expanded (covering 8,320 ha) during restoration, making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

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)
Otagase (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

To know the value of sales of agricultural products produced in Japan

To know the value added of agricultural products produced in Japan, or their sales value minus physical costs

To compare the value added by agriculture as part of gross domestic product (GDP) with values in other industries and foreign countries

#### Term

Total agricultural output

Agricultural production income

Gross agricultural production

#### Statistical data <source>

**9.3 trillion yen (2017)**  
<Agricultural production income statistics>

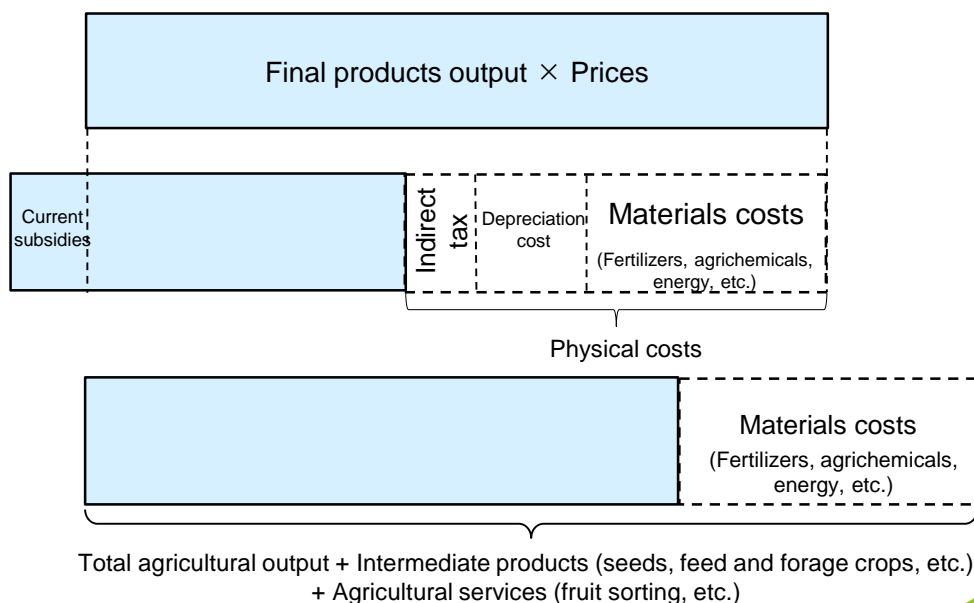
**3.8 trillion yen (2017)**  
<Agricultural production income statistics>

**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

To know the number of entities engaged in agricultural production or agricultural work under contract

To know the number of households engaged in agriculture

To know the number of households producing mainly agricultural products for sales out of farm households

To know the number of agriculture business companies, community-based farm cooperatives, etc.

#### Term

Agriculture management entities\*2

Family management entities\*1

Commercial farm Households\*2

Organized management entities\*1

#### Statistical data <source>

**1.22 million entities (2018)**  
< Survey on Movement of Agricultural Structure >

**1.19 million entities (2018)**  
< Survey on Movement of Agricultural Structure >

**1.16 million households (2018)**  
< Survey on Movement of Agricultural Structure >

**40,000 entities (2018)**  
< Survey on Movement of Agricultural Structure >

\*1: See Definitions 2 (1)

\*2: See Definitions 2 (2)

## Farm households

### Purpose

To know the number of all farm households including those producing agricultural products for their own consumption

To know the number of households producing agricultural products mainly for sales

To know the number of households headed by less than 65-year-old persons whose main income is from agriculture

To know the number of farm households having no non-agricultural job holders (without any age limit)

To know the number of farm households including non-agricultural job holders (without any age limit)

To know the number of farm households producing agricultural products mainly for their own consumption

### Term

### Statistical data <source>

Farm households\*1

**2.16 million households (2015)**  
<Census of Agriculture and Forestry 2015>

Commercial farm households\*1

**1.16 million households (2018)**  
< Survey on Movement of Agricultural Structure >

Business farm households\*1

**0.25 million households (2018)**  
< Survey on Movement of Agricultural Structure >

Full-time farm households\*1

**0.38 million households (2018)**  
< Survey on Movement of Agricultural Structure >

Part-time farm households\*1

**0.79 million households (2018)**  
< Survey on Movement of Agricultural Structure >

Noncommercial farm households\*1

**0.83 million households (2015)**  
<Census of Agriculture and Forestry 2015>

## Members of commercial farm households

### Purpose

To know the number of farm household members who worked as self-employed farmers for one day or more per year

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.)

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.)

### Term

### Statistical data <source>

Household members engaged in own farming\*2

**2.88 million persons (2018)**  
< Survey on Movement of Agricultural Structure >

Population mainly engaged in farming\*2

**1.75 million persons (2018)**  
< Survey on Movement of Agricultural Structure >

Core persons mainly engaged in farming\*2

**1.45 million persons (2018)**  
< Survey on Movement of Agricultural Structure >

## Employed farmers

### Purpose

To know the number of persons employed as farmers for a long term (seven months or more)

To know the number of persons employed as farmers for a short term (temporarily)

### Term

### Statistical data <source>

Permanently hired worker on farm \*2

**0.24 million persons (2018)**  
< Survey on Movement of Agricultural Structure >

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

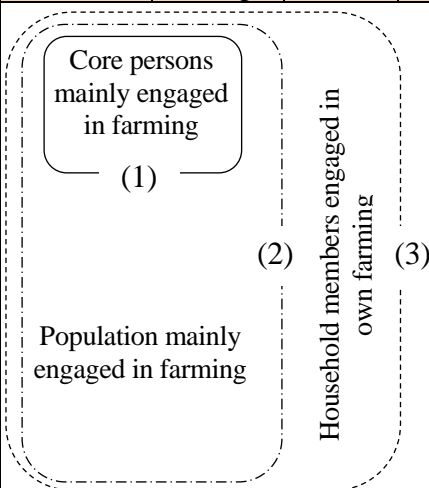
(2) Classification of farm households (definitions used since the 1990 World Census of Agriculture and Forestry)

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

		Involvement in farming			Household member
		Engaged only in farming	Engaged in both farming and other		Not engaged in farming
			Mainly farming	Mainly other	
Status during regular hours	Engaged mainly in work				<p>As a rule, people who live and earn a living together</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>- Full-time farmers Among persons engaged in mainly farming, those who are engaged in self-employed farming for more than 150 days per year</p>
	Other (housework and school, etc.)				
Permanently hired worker on farm		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).			
Temporary hired worker on farm		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.			



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

		Type of involvement in farming			Newcomers in agriculture
		Mainly engaged in agriculture as self-employed	Employed fulltime by corporations, etc.	Just entering farming	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.
Status before farming	Student	<div><div>Entrants to farming soon after graduation from school</div><div><div>New self-employed farmers</div><div>(1)</div></div><div><div>New employed farmers</div><div>(2)</div></div><div><div>New entries</div><div>(3)</div></div></div>			
	Employed in other work				
	Engaged in housework and child rearing / Other				

## (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	<ul style="list-style-type: none"> <li>- 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.</li> <li>- 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.</li> </ul>
Flat farming area	<ul style="list-style-type: none"> <li>- 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.</li> <li>- 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.</li> </ul>
Hilly farming area	<ul style="list-style-type: none"> <li>- Present and former municipalities where cultivated land accounts for less than 20% of the total area, other than urban and mountainous farming areas.</li> <li>- Present and former municipalities where cultivated land accounts for 20% or more of the total area, other than urban and flat farming areas.</li> </ul>
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 km <sup>2</sup> 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

<b>A</b>	
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>B</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 CO <sub>2</sub> 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).
<b>C</b>	
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 puddling, 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

	<p>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.</p> <p>○ “Food self-sufficiency potential indicator”</p> <p>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.</p> <p>(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</p> <p>(Pattern B) When major grains such as rice, wheat and soybeans are mainly cultivated by maximizing the calorie efficiency</p> <p>(Pattern C) When potatoes are mainly cultivated by maximizing the calorie efficiency with certain consideration to nutritional balance</p> <p>(Pattern D) When potatoes are mainly cultivated by maximizing the calorie efficiency</p>
Food self-sufficiency ratio	<p>This index indicates how much food for domestic consumption is being supplied by domestic sources.</p> <ul style="list-style-type: none"> <li>- Self-sufficiency ratio for individual items: The following equation is used to calculate the self-sufficiency ratio on a weight basis for individual items</li> </ul> <div style="border: 1px solid black; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Food self-sufficiency ratio calculation equation</p> <math display="block">\text{Self-sufficiency ratio for individual items} = \frac{\text{Domestic production volume}}{\text{Supply for domestic consumption}}</math> <math display="block">= \frac{\text{Domestic production volume}}{\text{Domestic production volume} + \text{Import volume} - \text{Export volume} \pm \text{Fluctuations in inventory}}</math> </div> <ul style="list-style-type: none"> <li>- 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.</li> <li>- Total food self-sufficiency ratio on calorie supply basis: Weight values for each item are converted to calories using the <i>Standard Tables of Food Composition in Japan - 2015 - (Seventh Revised Edition)</i>, 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.</li> <li>- 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</li> <li>- 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 <i>Standard Tables of</i></li> </ul>

	<i>Feed Composition in Japan (2009).</i>
<b>G</b>	
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 <sub>2</sub> ), methane (CH <sub>4</sub> , generated by rice paddies and final waste disposal sites), dinitrogen monoxide (N <sub>2</sub> O, 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 <sub>6</sub> , used in the production of semiconductors) and nitrogen trifluoride (NF <sub>3</sub> , used in the production of semiconductors; added in the second commitment period) as greenhouse gases that should be reduced.
<b>H</b>	
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.
<b>I</b>	
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.
<b>J</b>	
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.
<b>L</b>	
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.
<b>N</b>	
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.
<b>O</b>	
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.
<b>R</b>	
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.
<b>S</b>	
Sustainable development goals (SDGs)	<p>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.</p> <p>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</p>



	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 <sub>2</sub> 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

5

## (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.