

Current Status of Flowers and Plants in Japan



"Flowers Make You Feel Good" Campaign

July 2017

Ministry of Agriculture, Forestry and Fisheries

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For inquiries:

Agricultural Production Bureau

Flower Industry and Greenhouse Horticulture Promotion Office

Definition of Flowers and Plants

○According to Article 2 of the “Flowers and Plants Promotion Act,” “flowers and plants” are defined as plants provided for ornamental purposes. Specifically, they refer to cut flowers, potted plants, flowering trees and shrubs, flower bulbs, seedlings for flower beds, lawn grass and ground-covering plants.

[Flowers and Plants Promotion Act] (Act No. 102 of 2014) (Excerpt)

(Definition)

Article 2 (1) For the purpose of this Act, the term “flowers and plants” means plants provided for ornamental purposes.

(2) (Abbreviated)

Flowers and Plants

[Cut flowers]
Chrysanthemums,
roses, carnations, cut
leaves (e.g. palm
leaves), cut branches
(e.g. cherry
blossoms)

[Potted Plants]
Cyclamens, orchids,
foliage plants,
Japanese bonsai
plants, etc.

**[Flowering trees and
shrubs]**
Woody plants used as
garden trees and shrubs (e.g.
azaleas), including greening
trees (excluding those
produced as potted plants)

[Flower bulbs]
Tulips, lilies, etc.
(excluding edible types)

**[Seedlings for
flower beds]**
Pansies, petunias,
etc.

[Lawn grass]
Those cultivated for
landscape gardening
purposes, etc.

**[Ground-covering
plants]**
Plants covering
grounds and walls (e.g.
bamboo leaves, vines)

While there are no clear-cut definitions for “wild plants” and “forest trees,” it is reasonable to treat those grown for ornamental purposes as flowers and plants.

[Wild plants]
Grass plants, shrubs and some
undershrubs, etc. growing
naturally outdoors



[Forest trees]
Japanese cedars, Japanese
cypresses, Japanese red pines,
Japanese black pines, larches, etc.



1. Characteristics of Flowers and Plants

- Unlike vegetables and fruits, which are chosen for the purpose of food consumption, flowers and plants are used for a variety of purposes, such as ceremonial occasions, gifts and decorations.
- Flowers and plants are highly dependent on people's preferences, with many different kinds, breeds, colors, etc., available, depending on the purpose and situation of their use.
- Therefore, in implementing measures to promote flowers and plants, it is vital to adopt measures based on the perspective of the consumers (downstream), taking into account their wide variety of needs, more so than when dealing with other items such as vegetables and fruits.

Chrysanthemums

No. 1 output
69.2 billion yen

Funerals



"Ringiku (a single chrysanthemum flower per stem)" (white)

Flowers of condolence



Tropical orchids (pot-grown)

No. 2 output
33.3 billion yen

Celebratory gifts



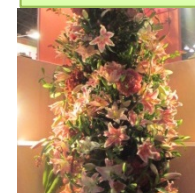
Phalaenopsis orchids (white, pink)



Lilies

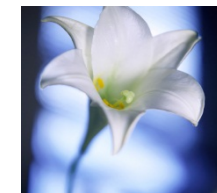
No. 3 output
21.7 billion yen

Decorations



Oriental lilies (pink, white, etc.)

Flowers of condolence



Easter lilies (white)

Roses

No. 4 output
19 billion yen

Weddings



(pink etc.)

Anniversaries



(red etc.)

Flowering trees and shrubs (pot-grown)

No. 5 output
16.8 billion yen



Hydrangeas, poinsettias, etc.

Cut branches

No. 7 output
15.1 billion yen

"Ikebana" Japanese flower arrangements



Nursery trees for gardens

No. 6 output
14.8 billion yen

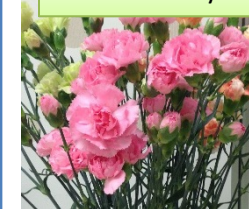
Town development



Carnations

No. 8 output
12.6 billion yen

Mother's Day



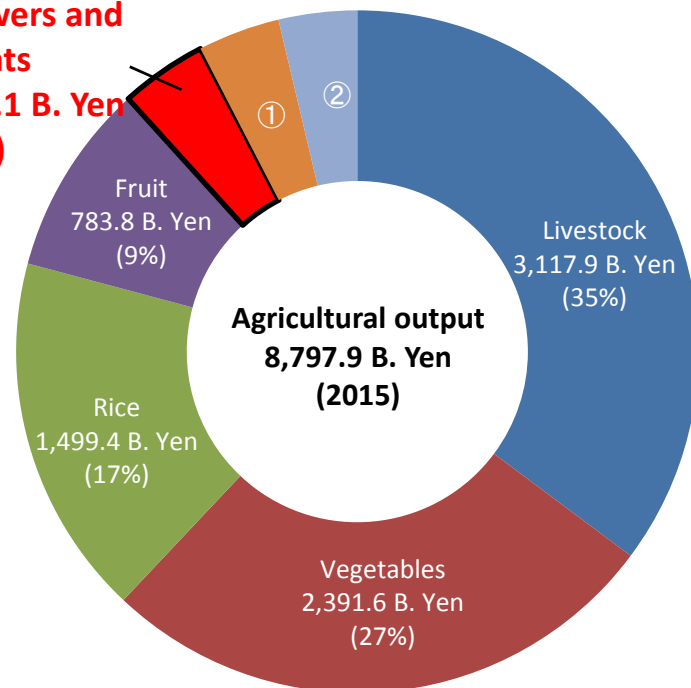
2. Production of Flowers and Plants ① (Output)

- The output of flowers and plants came to 380.1 billion yen in 2015, accounting for 4% of the total agricultural output.
- Of the total output of flowers and plants, cut flowers accounted for approximately 60%, potted plants about 30% and seedlings for flower beds about 10%.

■ Japan's agricultural output (2015)

- ① Potatoes, beans, wheat and barley
337.7 B. Yen (4%)
- ② Others 314.6 B. Yen (4%)

**Flowers and
Plants
380.1 B. Yen
(4%)**

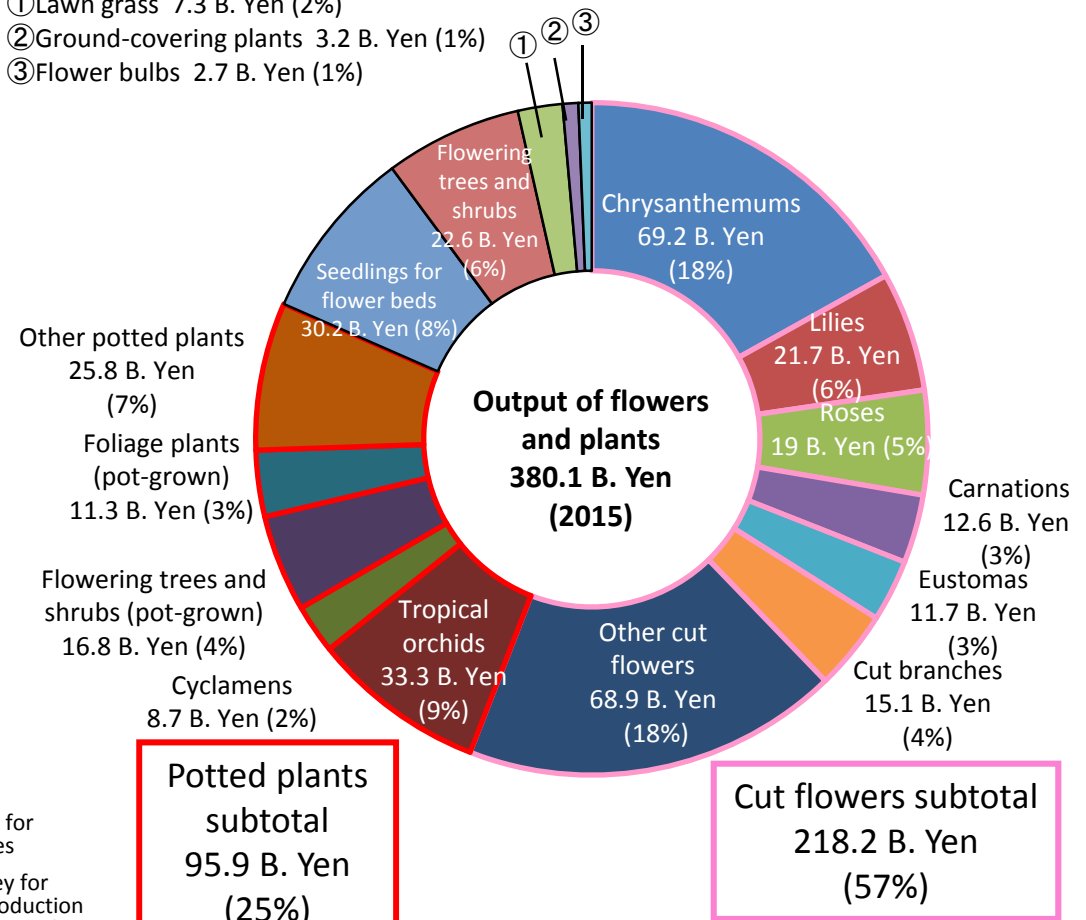


Source: "Statistics on Agricultural Production Income," "Production status survey for flowering trees and shrubs," Ministry of Agriculture, Forestry and Fisheries

* For the output of flowers only, the output value in the "Production status survey for flowering trees and shrubs" is added to that in the "Statistics on Agricultural Production Income." Therefore, the output values for the items shown above do not add up to the total agricultural output of 8,797.9 billion yen, which is based on output figures in the "Statistics on Agricultural Production Income."

■ Breakdown of output of flowers and plants(2015)

- ① Lawn grass 7.3 B. Yen (2%)
- ② Ground-covering plants 3.2 B. Yen (1%)
- ③ Flower bulbs 2.7 B. Yen (1%)

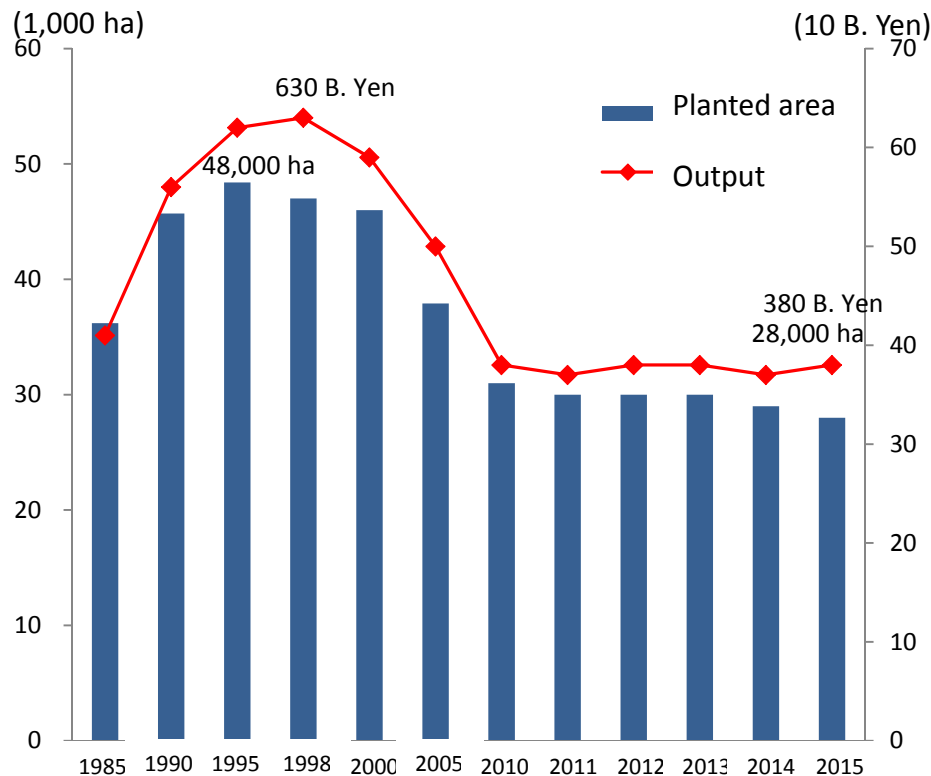


Source: "Statistics on Agricultural Production Income," "Production status survey for flowering trees and shrubs," Ministry of Agriculture, Forestry and Fisheries

2. Production of Flowers and Plants ② (Output, planted area, etc.)

- The output of flowers and plants has been on a declining trend for all items since peaking in 1998, due mainly to an increase in imports of cut flowers and a drop in the number of flower growers.
- Some producers have succeeded in establishing favorable sales models through stable shipments for year-round supply and production through direct dealing according to demand.

Changes in output and planted area of flowers and plants



Source: "Statistics on Agricultural Production Income," "Statistics on cultivated area and planted area," "Statistics on Production and Shipment of Flowers" (Statistics Department); "Production status survey for flowers," "Production status survey for flowering trees and shrubs" (Agricultural Production Bureau)

Note 1: Regarding data on flowering trees and shrubs, the production value is shown until 2007 and the shipment value from 2008.

Note 2: The planted area shows the total area of outdoor sites and facilities that grow cut flowers, potted plants and seedlings for flower beds.

Examples of high-performing producers

[Case 1] JA (Japan Agricultural Cooperative) Aichi Minami, Ringiku Committee

Item: Ringiku (Tahara City, Aichi Prefecture)

- Total committee members: 856
Annual shipments: 2.7 million cases (2013)
- Stable shipments for year-round supply made possible by switching planted breeds
- Created 3 subcommittees that have different characteristics, in order to meet the demands of various sales channels
 - Team Star (Mainly box shipments, with emphasis on in-advance negotiated transactions)
 - Team Sky (Mainly box shipments, with emphasis on production of each grower)
 - Team Max (Mainly individual sale; meets demands of markets per item)

[Case 2] Jardin Co.

Item: Seedlings for flower beds (Inzai City, Chiba Prefecture, etc.)

- No. of employees: 226
Annual production: 41.5 million plug seedlings, 14.7 million pot seedlings
- Switched from production of potted flowers to production specialized in seedlings, thus marking a shift from handling shipments mainly intended for markets to direct dealing with DIY stores, etc.
- Places emphasis on human resources development, such as staff training and technology presentations, to meet the advancement of production technologies
- Gathers information on consumer needs and places different POP displays and samples in each store to create differentiation from other products

2. Production of Flowers and Plants ③

- Major producers of flowers and plants are Aichi, Chiba and Fukuoka prefectures. In Aichi Prefecture, flowers are an important agricultural field, accounting for 20% of total agricultural output.
- Horticultural crops are seen as an attractive field, with **85%** of new farmers choosing vegetables, fruit and flowers as their main crop.

Output of flowers and plants by prefecture (2015)

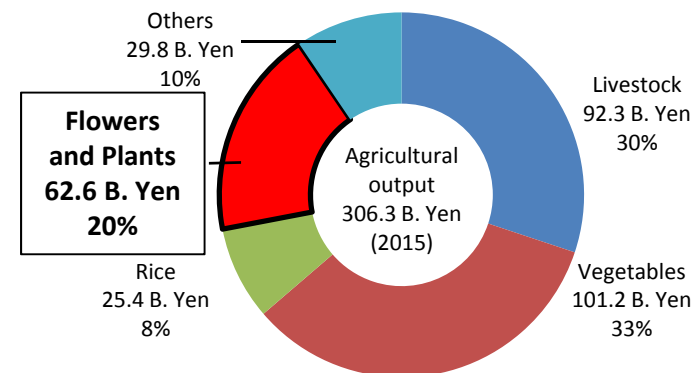
Unit: B. Yen

Rank	Prefecture	Output
1	Aichi	62.6
2	Chiba	25.6
3	Fukuoka	22.9
4	Saitama	18.5
5	Shizuoka	18.0

Source: "Statistics on Agricultural Production Income," "Production status survey for flowering trees and shrubs," Ministry of Agriculture, Forestry and Fisheries

* The output value in the "Production status survey for flowering trees and shrubs" is added to that in the "Statistics on Agricultural Production Income."

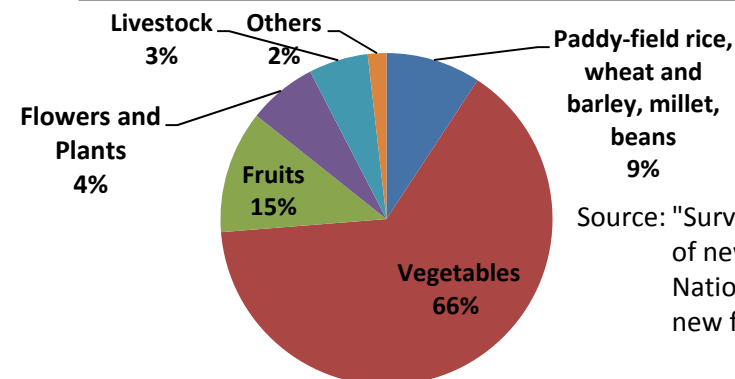
Agricultural output for Aichi Prefecture (2015)



Source: "Statistics on Agricultural Production Income," "Production status survey for flowering trees and shrubs," Ministry of Agriculture, Forestry and Fisheries

* For the output of flowers and plantonly, the output value in the "Production status survey for flowering trees and shrubs" is added to that in the "Statistics on Agricultural Production Income." Therefore, the output values for the items shown above do not add up to the total agricultural output of 306.3 billion yen, which is based on output figures in the "Statistics on Agricultural Production Income."

Crops grown by new farmers (FY2016)



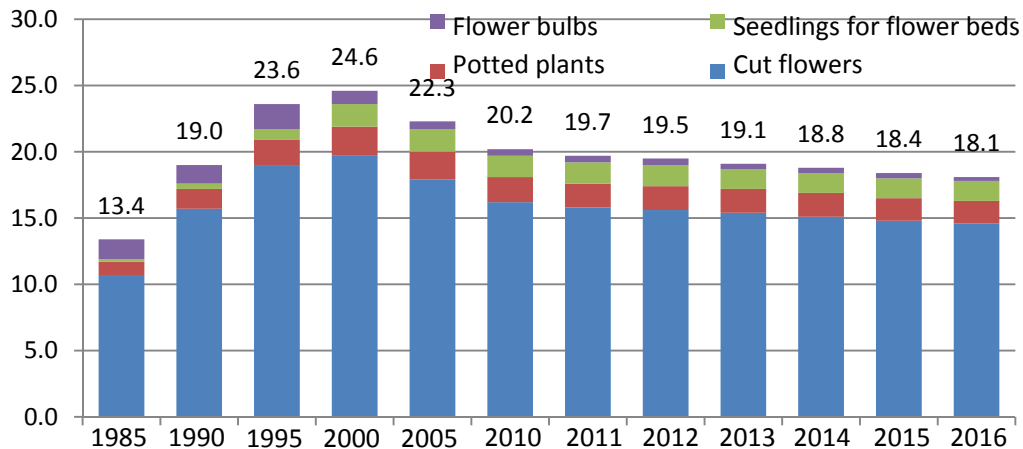
Source: "Survey results on the status of new farmers (FY2016)," National support center for new farmers

2. Production of Flowers and Plants ④ (Planted area, shipments and No. of commercial farm households)

- Planted areas and shipments have been on a downtrend in recent years due to factors such as a drop in the number of commercial farm households and an increase in imports of cut flowers.
- While the number of commercial farm households for flowers is on the decline, it is clear from the farmers' age groups that the younger generation is active, as the proportion of young flower growers below 45 years of age is approximately double that of young rice farmers.

■ Changes in planted area of flowers and plants

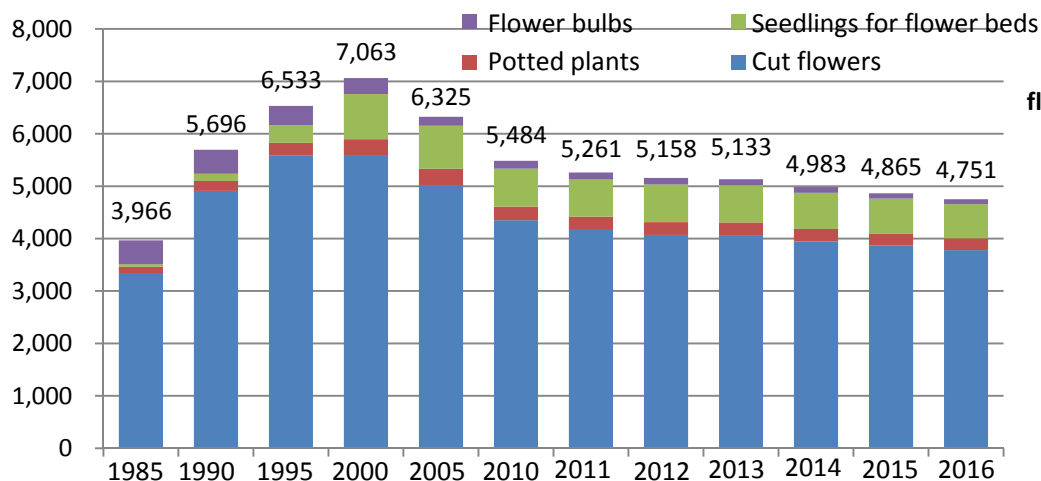
(1,000 ha)



Source: "Statistics on Production and Shipment of Flowers," Ministry of Agriculture, Forestry and Fisheries

■ Changes in shipments of flowers and plants

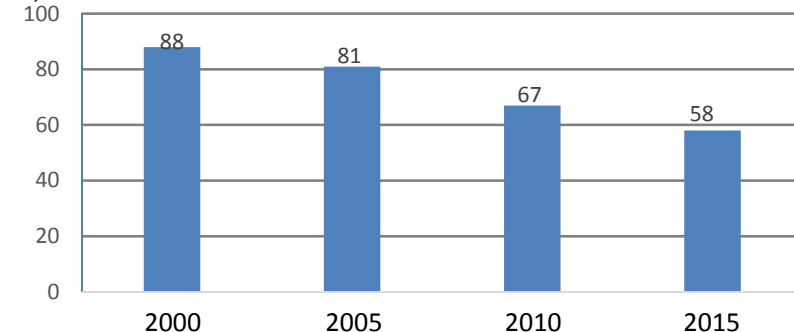
(in millions of flowers/bulbs/pots)



Source: "Statistics on Production and Shipment of Flowers," Ministry of Agriculture, Forestry and Fisheries

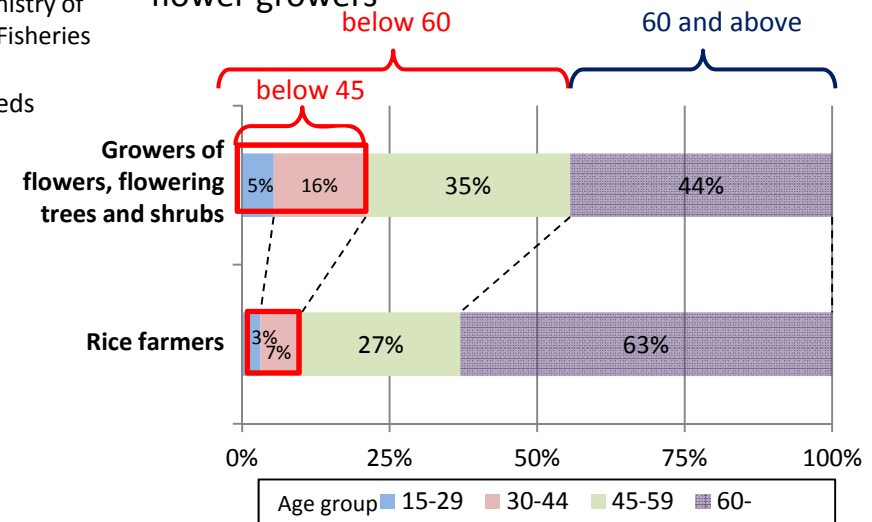
■ Changes in the number of commercial farm households for flowers and plants

1,000 households



Source: "Census of Agriculture and Forestry," Ministry of Agriculture, Forestry and Fisheries

■ Comparison of age groups of rice farmers and flower growers

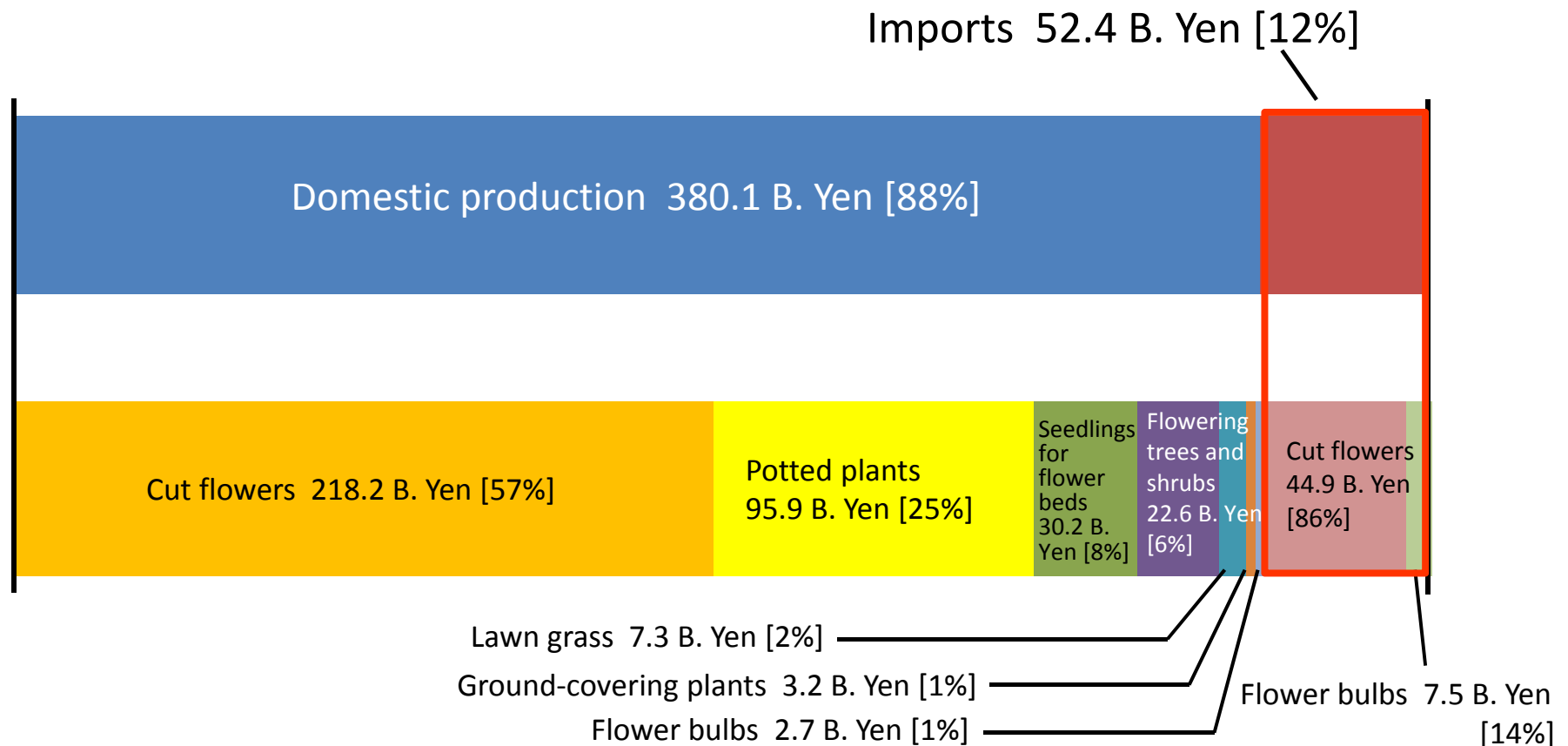


Source: Report on survey of agriculture and forestry management entities, "2010 World Census of Agriculture and Forestry," Ministry of Agriculture, Forestry and Fisheries
Of the commercial farm households, the number of dedicated farming household members shown under the "Statistics on population mainly engaged in farming by age group for business farm households" (the number of household members mainly engaged in self-employed

2. Production of Flowers and Plants ⑤ (Supply-demand structure <in value>)

- Of the domestic supply of flowers and plants, domestic production (in value terms) accounts for some 90% and imports around 10%.
- Of the domestically produced flowers and plants, cut flowers account for about 60%, followed by potted plants and seedlings for flower beds.
- Of the imported flowers and plants, nearly 90% are cut flowers and the remainder are flower bulbs.

■ Supply-demand structure of flowers and plants (2015)

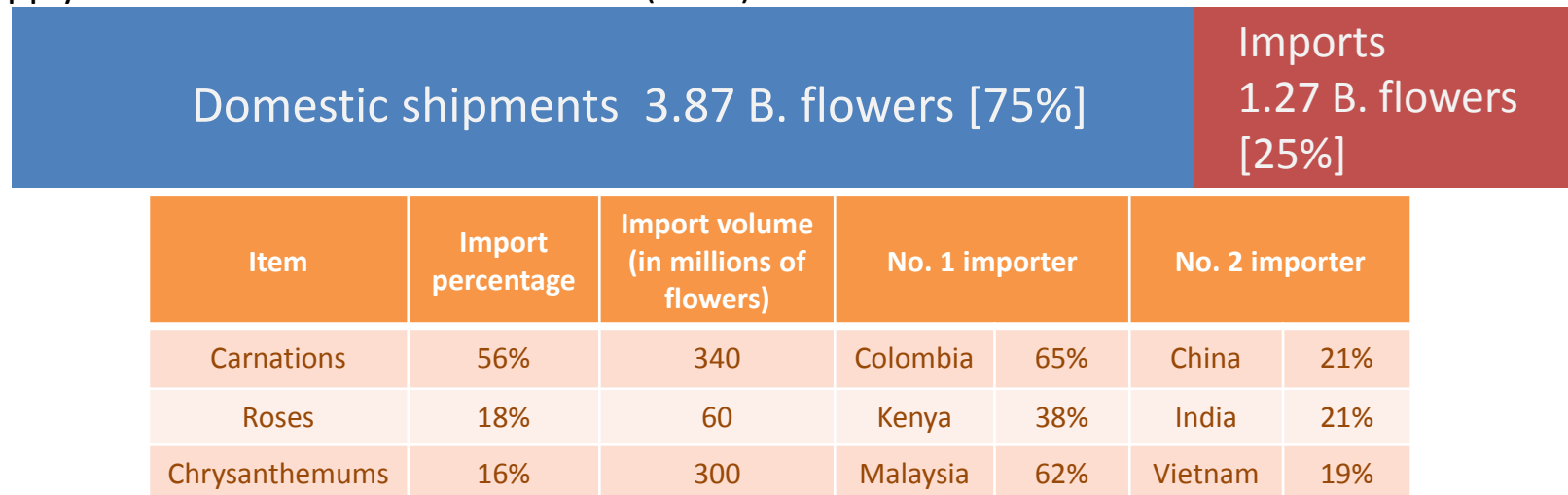


Source: "Statistics on Agricultural Production Income," "Production status survey for flowering trees and shrubs," Ministry of Agriculture, Forestry and Fisheries; Trade statistics, Ministry of Finance

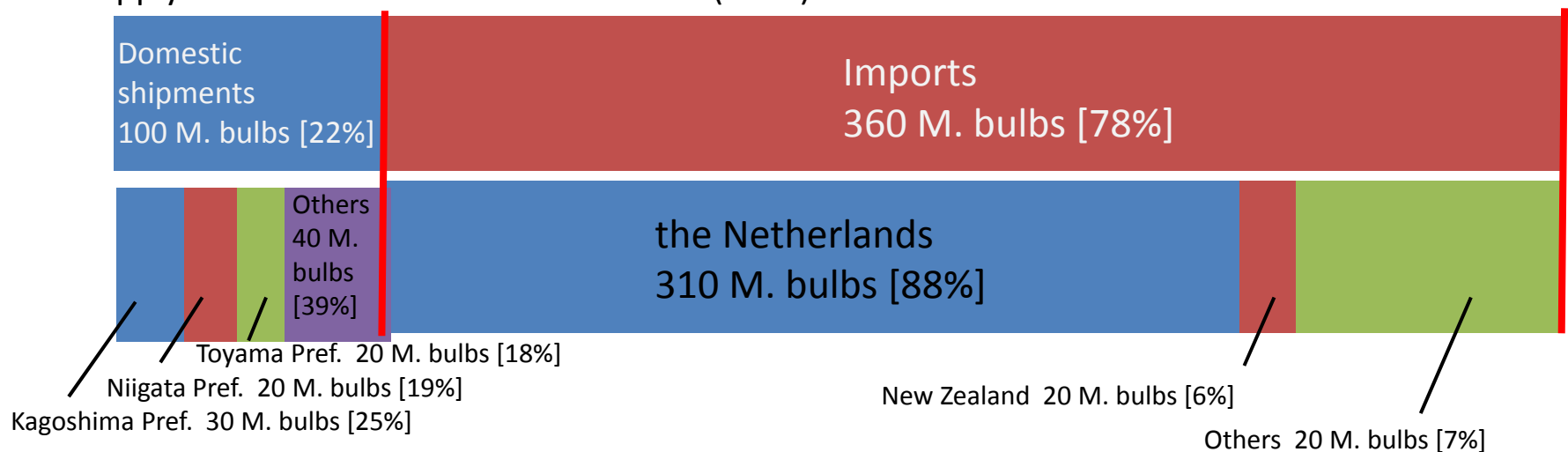
2. Production of Flowers and Plants ⑥ (Supply-demand structure <in volume>)

- 25% of cut flowers are imported (on volume basis), with carnations, roses and chrysanthemums ranking high in import percentage. Major importers are Colombia, Malaysia, China, Kenya, etc.
- Around 80% of flower bulbs are imported (on volume basis), with the majority imported from the Netherlands.

■ Supply-demand structure of cut flowers (2015)



■ Supply-demand structure of flower bulbs (2015)



Source: "Statistics on Production and Shipment of Flowers," "Statistics on Plant Quarantine," Ministry of Agriculture, Forestry and Fisheries

2. Production of Flowers and Plants ⑦

- The majority of flowers are bred by private companies and producers themselves.
- Institute of Vegetable and Floriculture Science at National Agriculture and Food Research Organization (NARO) is working on the development of technologies for [1] cost reduction and energy saving and [2] vase life extension and disease resistance improvement, which are matters that cannot be easily addressed by private companies.

Branding and other efforts

■ Branding and differentiation through the development of original varieties at private companies, etc.

- Reviving double pansies that have gone extinct overseas
- Developing the world's first yellow primroses



Double pansy



Yellow primrose

Cost reduction/energy saving technologies

■ Technology for low-cost planned wintertime production of eustomas

- Reducing fuel consumption by 50%. Keeping production cost under 100 yen per flower

■ Energy-saving flower production technology utilizing heating and lighting after sundown

- Reducing fuel consumption by 30% by promoting earlier flowering with heat treatment after sundown
- Shortening cultivation period per production cycle by seven to ten days by applying far-red light after sundown



Flowers grow faster with three-hour heating and lighting after sundown

Source: "New Agricultural Technology 2012"

Vase life extension technologies

■ Utilization of preservative solutions

- Vase life can be extended by 30% by properly using preservative solutions in each phase of production, distribution, retail and consumption.

■ Development of long-lasting varieties

- Developing new varieties named "Miracle Rouge" and "Miracle Symphony," whose vase life is three times longer than the ordinary varieties



Miracle Rouge (center) lasts for 18 days.

Research results from the Institute of Vegetable and Floriculture Science, NARO under the FY2011 Demonstration Project for the Sale of Flowers with Vase Life Guarantee

Disease resistance improvement technology

○ ■ Developing and cultivating varieties with high disease resistance

- Developing a new carnation variety named "Hanakoi Rouge" with high resistance against bacterial wilt (*a soil-borne infectious disease that causes plants to shrivel and die quickly), which frequently occurs at higher temperatures



"Hanakoi Rouge" (center) stayed healthy even after infection with bacterial wilt

Research results from the Institute of Vegetable and Floriculture Science, NARO

- Shortening the breeding period by development DNA markers for identifying plants with high resistance

Production Related Issues – Breeding and Variety Development

Current Situation and Challenges

- Approximately 60% of applications based on the Plant Variety Protection and Seed Act are related to flowers, of which 90% were filed by individuals and seed/seedling companies.

Proportion of flowers in varieties for which applications have been filed

All varieties ①	Flowers ②	Application filed by individuals and seed/seedling companies ③	②/①	③/②
32,213	19,938	18,034	62%	90%

Source: "Statistics on Variety Registration," Ministry of Agriculture, Forestry and Fisheries (as of March 31, 2017)

Development of flower varieties is mainly led by private companies and individual breeders.

- 70% of agricultural varieties that are deregistered as renewal procedures were not taken are flowers. The color and shape of flowers are greatly affected by trends.

- Mass production of virus-free flower bulbs is an important issue. Some varieties take as long as 20 years to develop.

- Export value for flowers is approximately 10 billion yen, of which 90% is accounted for by garden trees. Resource depletion is an issue. Efforts concerning cut flowers need to be made in order to expand exports for the future.

Varieties deregistered due to non-renewal

All varieties ①	Flowers ②	②/①
15,668	10,797	69%

Source: "Statistics on Variety Registration," Ministry of Agriculture, Forestry and Fisheries (as of March 31, 2017)

Variety development period and target variety appearance ratio

- It took Toyama Prefecture, which is known for active tulip breeding and variety development, about 20 years to develop "Arisa."
- The ratio of appearance of "Wedding Veil," which was born around the same period as "Arisa," is one-30,000th. It was found in one of approximately 30,000 seeds produced through 400 crossings.



Policy for the future

- Accelerate the cultivation of new varieties through collaboration among private companies and individual breeders that hold various seed/seedling materials and researchers that have quality genetic resources, such as disease resistance and longevity

Private companies, individual breeders



Researchers

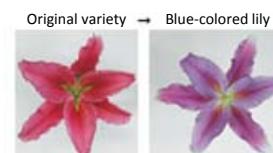


- Original varieties developed with an aim of branding and differentiation

- Varieties developed with new breeding technologies, such as DNA markers

[Example of new variety development by a private company]

- Suntory Group developed the world's first blue carnations, which are now sold under the name "Moon Dust." In 2004, it also succeeded in the development of blue roses, which are sold under the name "Blue Rose Applause." It launched research on blue lilies in April 2006. **The company has already succeeded in the development of blue lilies and is now working on their commercialization.**



Production Related Issue – Energy ①

- Oil prices have been highly volatile in recent years, causing a squeeze on the management of greenhouse horticulture farms as fuel costs account for a large portion of their operating costs.
- Urgent response is needed, such as shifting to a management structure that is less vulnerable to high oil prices.

Proportion of fuel costs in agricultural expenditures

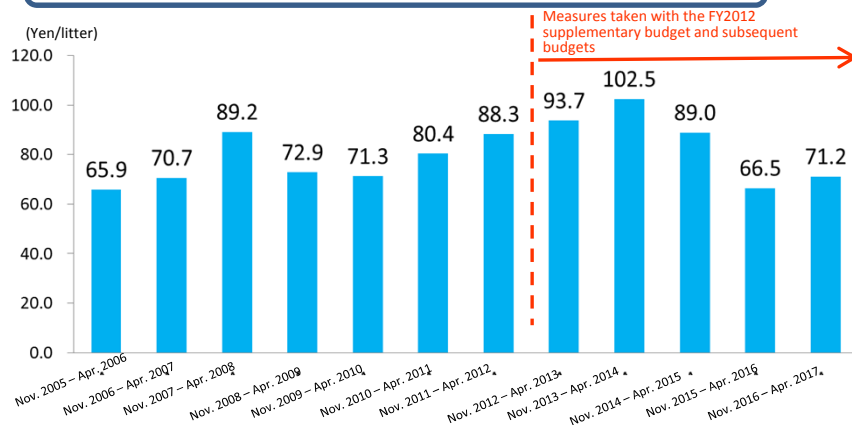
Agriculture	Bell pepper	26%
	Rose	31%
	Mango	44%
	Tea (processed)	27%
Fishery	Squid fishing (coastal)	26%
Other industries	Taxi	8%
	Truck	5%

Agriculture: Proportion of fuel costs estimated based on the 2015 Statistics on Individually Managed Farms by Farm Type. The figure for mango is based on surveys in production areas.

Fishery: Based on the 2015 Fishery Management Survey Report.

Other industries: Figures for taxi and truck are based on the Business Management Index for the Automobile Transportation Industry

Recent oil prices (average price during the heating period)



Source: “Statistical Survey on Commodity Prices in Agriculture”

Note: Average prices of heavy oil (class A) during the heating periods (November to April) at greenhouse horticulture farms

Fuel consumption in flower production

Items	Usage volume per 1000m ² (ℓ)
Light-cultured chrysanthemum	7,500
Rose	13,500
Eustoma	10,963
Phalaenopsis orchid (potted)	9,000

Source: “Miyazaki Prefecture Farm Management Policy”

Price comparison of heavy oil (class A) and other fuels

	Unit calorific value	Price	Price per 1,000kcal
Fuel coal for power generation	6,354kcal/kg	10.0 yen/kg	1.6 yen
Wood chips (for paper manufacturing)	2,530kcal/kg	15.5 yen/kg	6.1 yen
Pellet	4,000kcal/kg	40.0 yen/kg	10.0 yen
Heavy oil (class A)	9,341kcal/litter	95.9 yen/litter	10.2 yen
Kerosene	8,767kcal/litter	111.8 yen/litter	12.8 yen

Source: Prepared by the Forestry Agency

Note: Figures for fuel coal are based on interviews with relevant persons. The price for wood chips is calculated by adding transportation cost of 3,000 yen/ton to the ex factory price in April 2014 provided in “Wood Prices” (for pulp) published by the Ministry of Agriculture, Forestry and Fisheries. The unit calorific value and price for wood chips are calculated with a moisture content of Wet. 40%. Price for heavy oil (class A) is the delivery price for small-sized industrial trucks as of March 2014 published by the Oil Information Center. Price for kerosene is the consumer price as of April 2014 published by the Oil Information Center. Price for pellets is calculated by assuming 40 yen/kg as the current price for pellets that are produced by timber mills using remainder wood materials and delivered to a nearby pellet factory.

Production Related Issue – Energy②

- Fuel costs account for a significant portion of operating costs for greenhouse horticulture. In addition, oil prices have repeatedly swung up and down due to the influence of the situation of currency exchange and international commodity markets. Fuels are difficult production materials whose future prices are unpredictable.
- For this reason, greenhouse horticultural production areas that have already engaged in energy saving efforts are also required to shift to a management structure that is less vulnerable to high oil prices.
- The government promotes the development of a safety net by providing production areas addressing such management reform with compensation money when oil prices exceed a certain level.

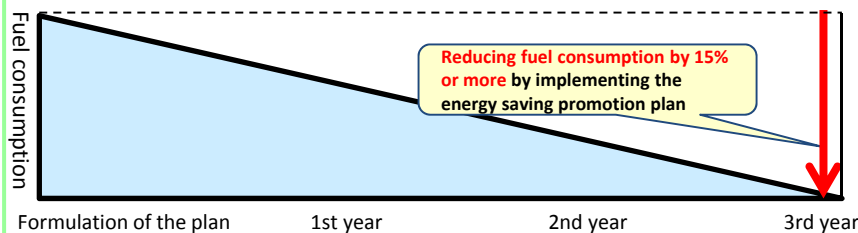
[Basic mechanism of the countermeasures against high oil prices]

Shifting to a management structure that is less vulnerable to high oil prices

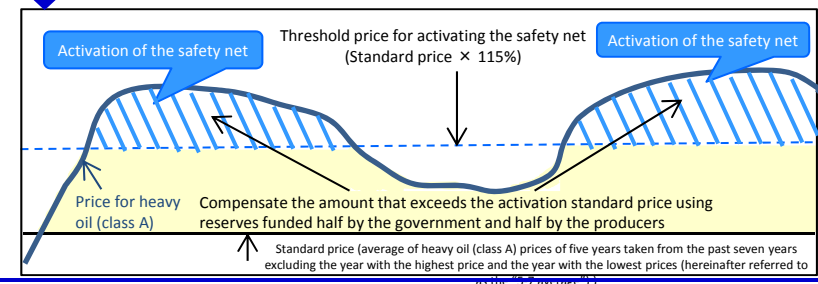
- Promote stable management by providing a safety net to mitigate the effect of high oil prices that cannot be covered solely by energy saving efforts for greenhouse horticultural production areas that have formulated an energy saving promotion plan for the goal of fuel consumption reduction of 15% or more.

Formulating an energy saving promotion plan in greenhouse horticultural production areas

- Setting a target fuel consumption reduction (-15% or more) and measures toward the achievement of this goal



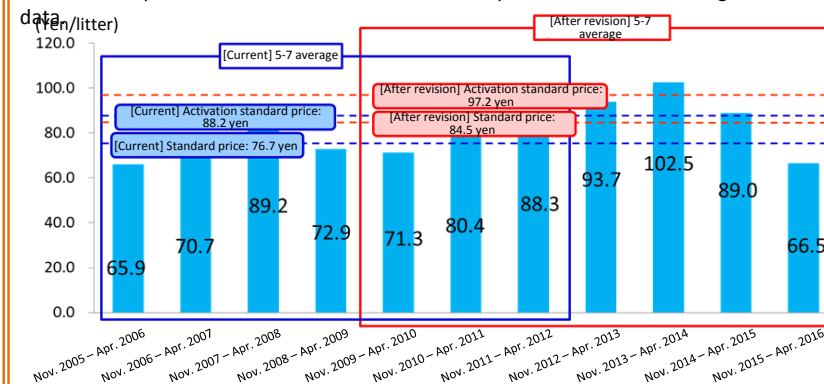
Promoting safety net development (subsidy rate: 50%)



[points of the revision]

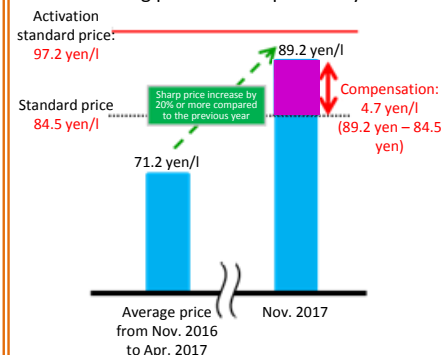
[Revision 1] Standard price for activating the safety net

The standard price has been fixed since FY2012. This price will be revised using the recent



[Revision 2] Introduction of special measures against soaring prices

The amount exceeding the standard price is compensated when the monthly oil price rises by 20% or more compared to the average price for the heating period in the previous year.



[Revision 3] Enrollment requirements

[Greenhouse horticultural production areas starting to address energy saving measures]

- Reduce fuel consumption per 10a by 15% or more by introducing energy saving facilities, etc.



[Greenhouse horticultural production areas that continue to address energy saving measures]

(Must fulfill one of the following)

- Further reduce fuel consumption per 10a by 15% or more by introducing energy saving facilities, etc.
- Reduce fuel consumption per ton of products by 15% or more by improving cultivation technologies, etc.
- Contain fuel costs and consumption by utilizing private financial instruments, etc.

Shifting to a management structure that is less vulnerable to high oil prices

3. Market of Flowers and Plants

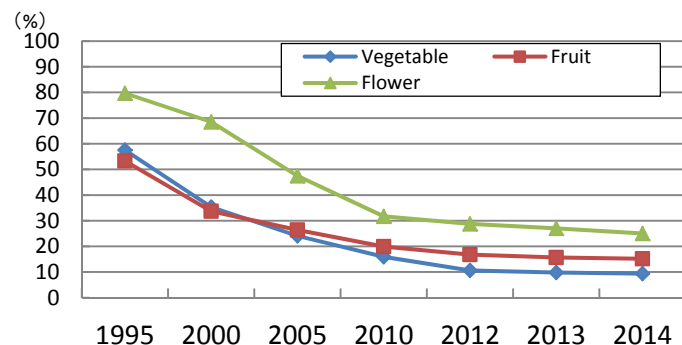
- Due to the number of items and varieties and very small retail structure, an extremely large portion of flowers (nearly 80%) are distributed through wholesale markets.
- At wholesale markets, approximately 30% of flowers are traded by auction. Although this ratio is high compared to those for vegetables and fruits, it has been constantly decreasing since it reached 80% in 1995.
- Retail costs account for 50% of flowers' retail prices. This is due to cost for processing them into bouquets and significant product losses.
- There is a new trend for non-market trade, such as trading flowers only online and at logistics centers.

Ratio of agricultural and fishery products distributed through wholesale markets (%)

	1995	2000	2005	2010	2011	2012	2013
Fruits and vegetables	74.0	70.4	64.5	62.4	60.0	59.2	60.0
Vegetables	80.5	78.4	75.2	73.0	70.2	69.2	70.2
Fruits	63.4	57.6	48.3	45.0	42.9	42.4	42.2
Fishery products	67.6	66.2	61.3	56.0	55.7	53.4	54.1
Flowers	81.9	79.1	82.8	83.4	84.4	78.7	78.0

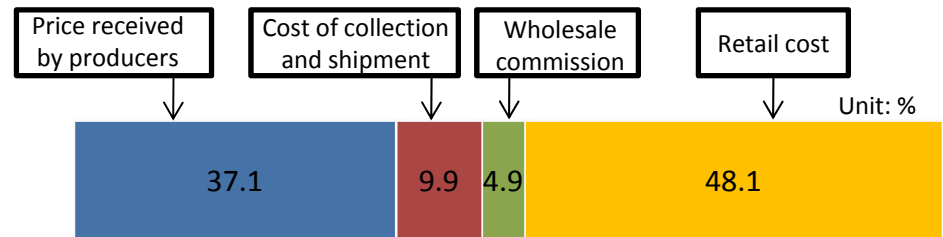
Source: "Wholesale Market Data," Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries

Proportion of actions at central wholesale markets (in value terms)



Source: "Wholesale Market Data," Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries

Retail price formation for flowers (estimation)



Source: "FY2009 Survey on Distribution Costs in the Flower Industry" (project commissioned by the Ministry of Agriculture, Forestry and Fisheries)

Note 1: Estimation for the case in which a retailer purchases flowers from a wholesaler.

Note 2: Producers' labor costs for sorting and packing are included in the price received by producers and not included in the cost of collection and shipment.

Distribution of flowers: New trends

Case of Company A

Company A shares shipment and sales information with producers and flower companies solely by the Internet. Transaction costs are reduced by completely separating sales channels and distribution channels. The distribution of products is entirely handled by logistics centers. The trade volume has increased every year from approximately 0.5 billion yen when the project started (1998) to 7.5 billion yen in FY2012.

4. Imports of Flowers and Plants

- Cut flowers account for the vast majority of imported flowers and plants. Cut flowers import has been on an increasing trend since 1985 when the custom duty was abolished.
- Major import partner countries include Colombia, Malaysia and China.
- Looking at items, imports of carnations and chrysanthemums are increasing remarkably due to improved vase life.

Changes in the domestic shipment volume and import volume of cut flowers

(0.1 billion units)

	1985	1990	1995	2000	2005	2013	2014	2015
Domestic shipment volume	42.5	53.2	55.8	55.9	50.2	40.7	39.5	38.7
Export volume	1.2	3.6	6.6	8.3	10.4	13.5	12.7	12.7
Total	43.7	56.7	62.4	64.2	60.7	54.2	52.2	51.4
Proportion of imported cut flowers (in volume terms)	3%	6%	11%	13%	17%	25%	24%	25%

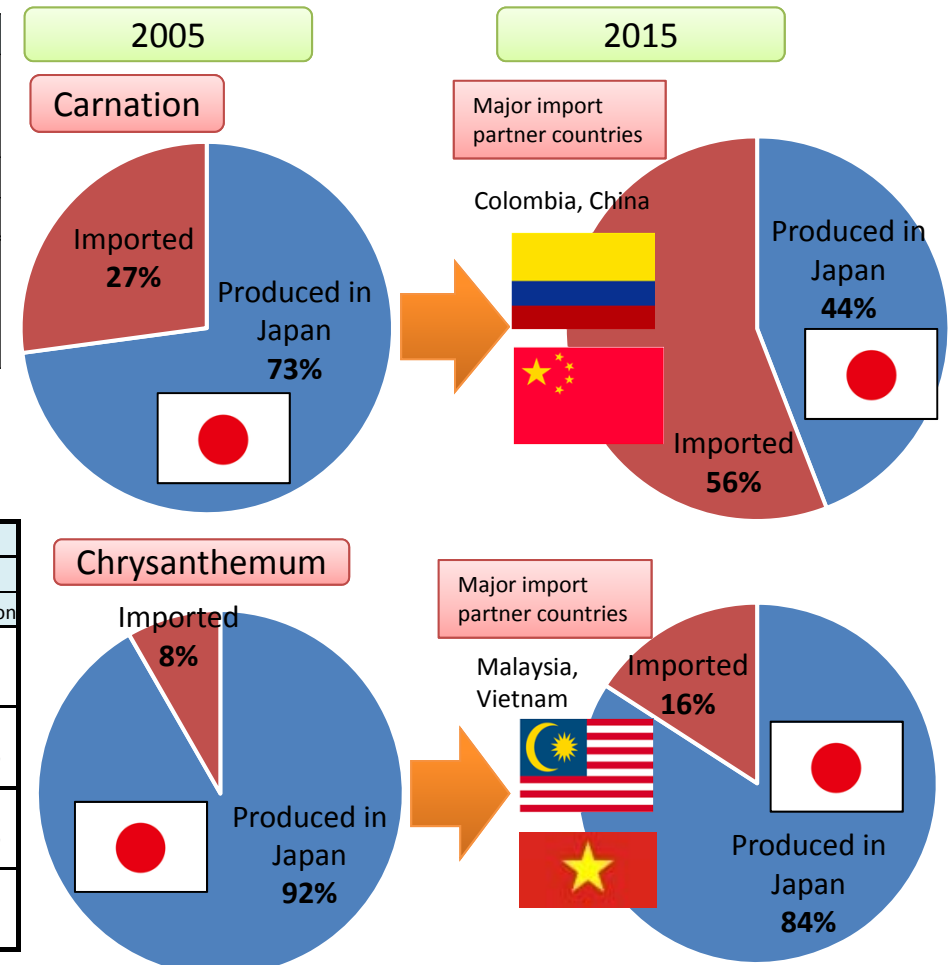
Source: "Statistics on Flower Production and Shipment" and "Statistics on Plant Quarantine," Ministry of Agriculture, Forestry and Fisheries

Import ratio and import volume by major cut flower item (2015)

Item	Import ratio	Import volume (0.1 billion units)	Major import partner countries					
			1st	Proportion	2nd	Proportion	3rd	Proportion
Carnation	56%	3.42	Colombia	65%	China	21%	Ecuador	9%
Chrysanthemum	16%	2.98	Malaysia	62%	Vietnam	19%	China	15%
Rose	18%	0.61	Kenya	38%	India	21%	Colombia	11%
Lily	5%	0.07	South Korea	92%	Vietnam	6%	Ecuador	1%

Source: "Statistics on Flower Production and Shipment" and "Statistics on Plant Quarantine," Ministry of Agriculture, Forestry and Fisheries

Changes in the import ratio of cut flowers (carnation and chrysanthemum)



Source: "Statistics on Flower Production and Shipment" and "Statistics on Plant Quarantine," Ministry of Agriculture, Forestry and Fisheries

Comparison of Carnation Production in Japan and Colombia ①

- While there is no significant difference in annual average temperature between Japan and Colombia, the monthly temperatures are virtually constant throughout a year in Colombia. For this reason, heating facilities are unnecessary. ⇒ Facility expenses and heating and lighting expenses (fuel expense, in particular) are not required.
- Since there are no prominent seasonal changes in Colombia, seasonal shifting in production areas does not occur and products are stably supplied throughout the year. In addition, there is a big temperature difference within a day, which is ideal for the color and growth of carnations.
- Flower production in Colombia started as farm and auxiliary facility development by some wealthy people worked in harmony with guidance on crop diversion by the US and the Colombian government's domestic security measures.

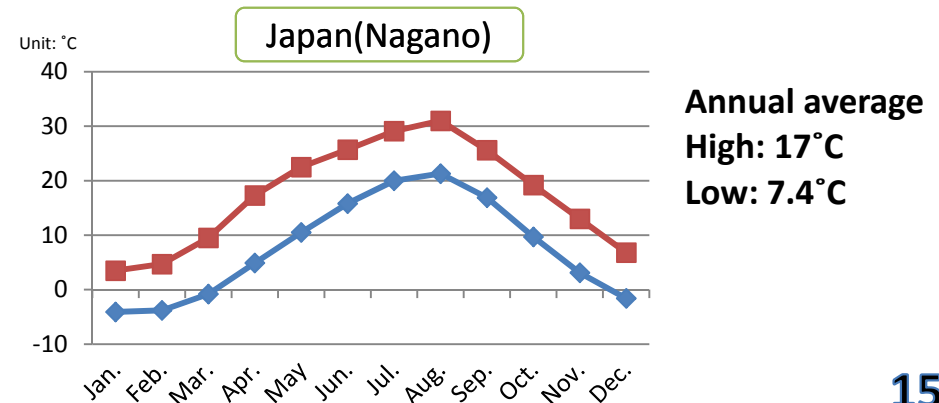
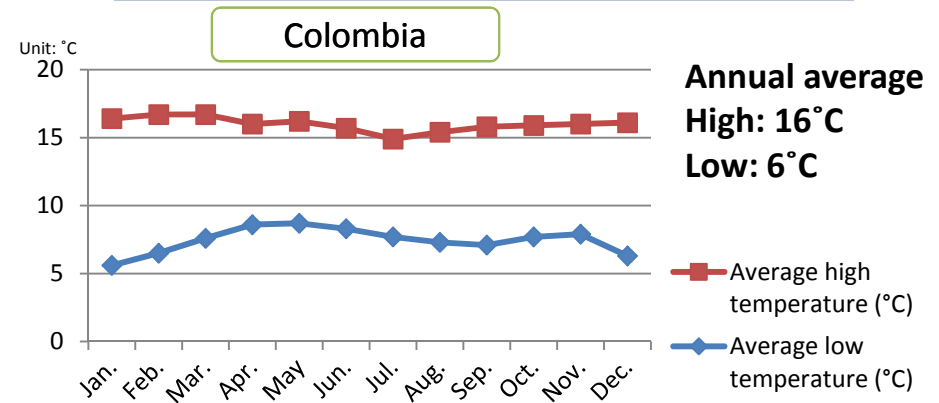
Comparison of the overview of carnation production

Japan		Colombia
318 ha (2015)	Area	1,066 ha (2015)
12.6 billion yen (2015)	Production value	26.1 billion yen (2015)* (Export value to Japan: 7.8 billion yen)
High: 17°C Low: 7.4°C	Annual average temperature*	High: 16°C Low: 6°C
Approx. 1,500 m	Altitude*	2,600 m

Source: "Statistics on Production and Shipment of Flowers" , "Statistics on Agricultural Production Income" (Statistics Department); International Statistics Flowers and Plants 2015(AIPH)

* Calculated at 136 yen to a euro, Figures for annual average temperature and altitude are those in the vicinity of production areas in Nagano Prefecture and Bogotá.

Comparison of average temperature



Comparison of Carnation Production in Japan and Colombia ②

- The average cost per unit in Colombia is half that of Japan (excluding distribution costs).
- While gray mold is a common disease in Japan, the risk of infection is lower in Colombia due to the weather conditions and cultivation environment.
- Colombia conducts thorough post-harvest temperature control and freshness control using antimicrobial agents, etc. In Japan, post-harvest processing and temperature control are still insufficient. Comprehensive efforts covering the production, distribution and retail phases need to be taken.

Comparison of costs of carnations

Japan (Nagano)		Colombia
264,000 yen/year	Fuel cost	0
Greenhouse	Facility cost*1 (per 10a)	Wooden frame and polyethylene film
3,711,000 yen		240,000 yen
130,000 yen/month	Labor cost per capita*2	260 dollars/month (Approx. 25,000 yen)
-----		-----
28.7 yen	Production cost per unit	14 cents (Approx. 13 yen)
10.4 yen (Production area → Market)	Distribution cost per unit	12 – 15 cents (Bogotá → Narita)

*1: Since Colombia is free from typhoons, simple facilities are sufficient.

*2: Figure for Nagano is calculated with the minimum hourly wage (713 yen).

Botrytis cinerea

- Botrytis cinerea is a fungus that is a great threat to flowers, as it causes gray mold disease.
- As it is a common disease in Japan, thorough temperature control and crop dusting are needed, which adds to costs.

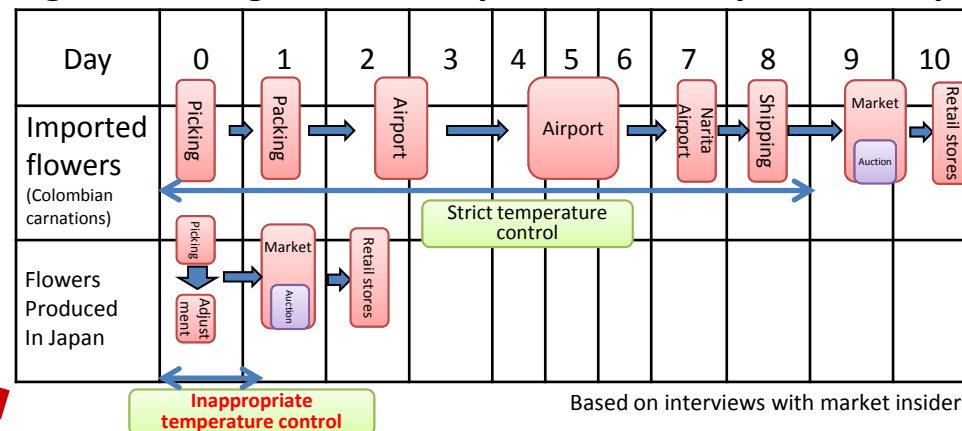
Greenness control for carnations

- Sorting after harvesting is conducted at room temperature in Japan, while in Colombia it is carried out in a room at 2-3 °C and flowers are then transported to airports at a low temperature.
- Since imported products have to endure lengthy transportation, freshness control is conducted in a thorough manner, through means such as using antimicrobial agents, preservation solutions and other chemical solutions.
- Such temperature control process is discontinued upon arrival at a Japanese airport and imported products are exposed to the same temperature conditions as the domestic products in the course of distribution to markets and retail stores.

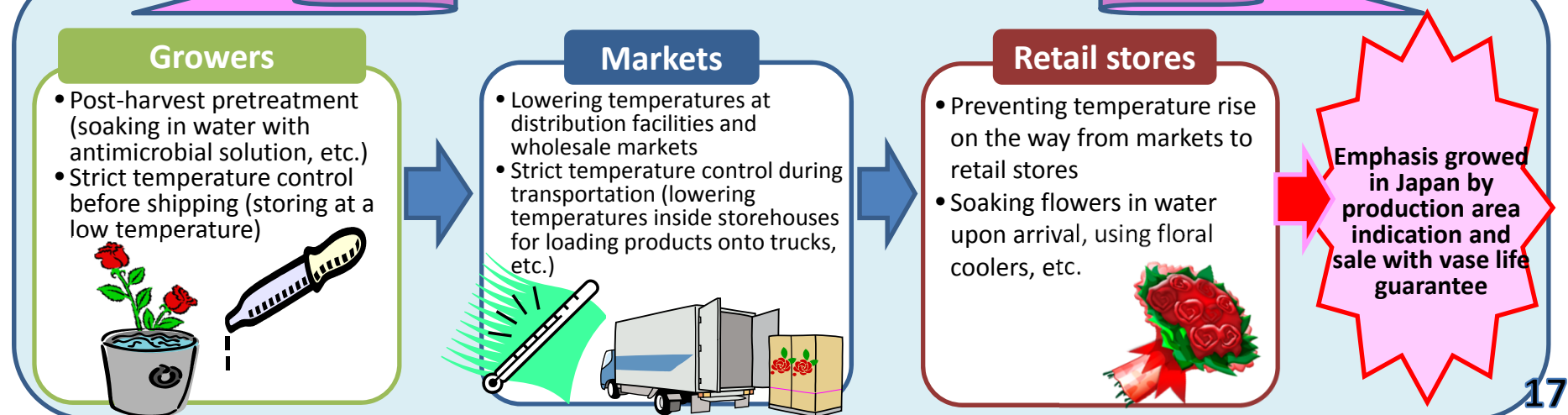
[Reference] Regaining the Domestic Share: Establishment of a Distribution System That Enhances the Strengths of Domestically Produced Flowers, Such as Longevity

- In order to recapture the market share seized by imported flowers and plants, it is important to leverage the strengths of domestically produced flowers, such as freshness and longevity.
- In order to extend the vase life, on which consumers put a high priority in determining product quality, [1] temperature control (establishment of the cold chain), [2] hygiene control and [3] use of preservative solutions must be thoroughly conducted in each phase of production, distribution and retail.

■ Timeline from harvesting to retailing for flowers produced in Japan and imported flowers and plants



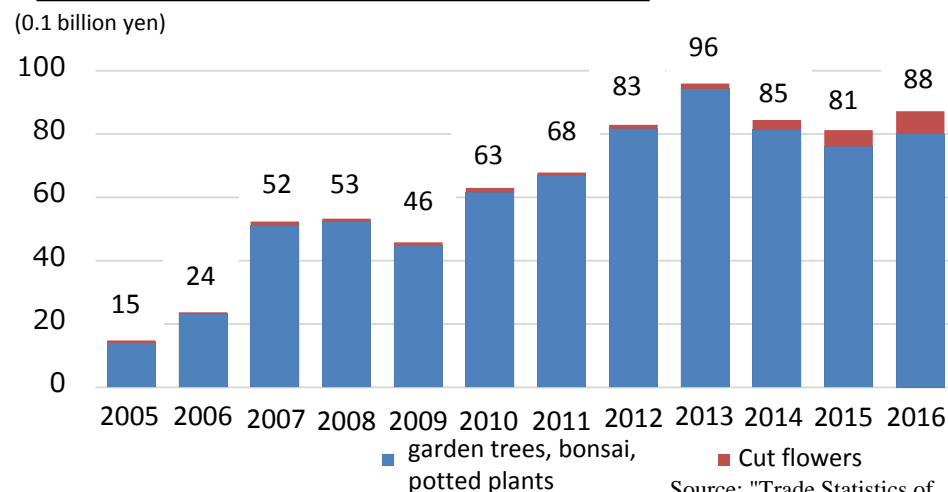
Establishment of a distribution system to enhance the freshness and vase life of flowers



5. Exports of Flowers and Plants ①

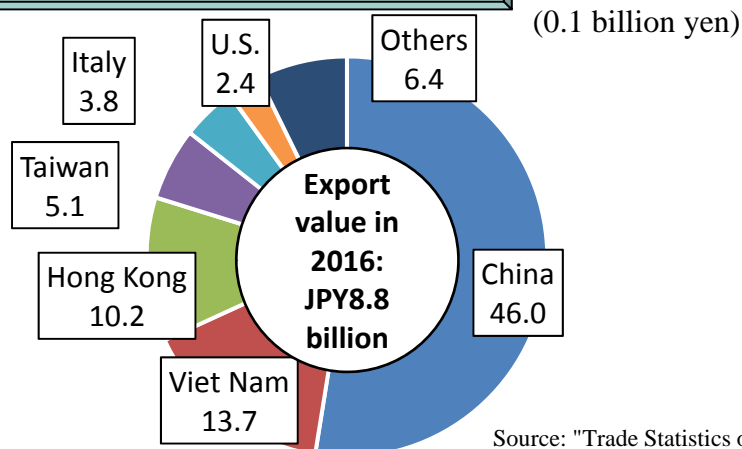
- The export value of flowers and plants (export items of focus) in 2016 was 8.8 billion yen, with garden trees, bonsai and potted plants accounting for the vast majority. Although the share of cut flower is low, the absolute value is growing thanks to promotional activities in export partner countries, etc.
- Based on the Strategy on the Enhancement of Export Power in the Agriculture, Forestry and Fishery Industries formulated in May 2016, Japan aims to increase the export value of garden trees, bonsai, potted plants and cut flowers to 15 billion yen by 2019 by communicating the attractive features of Japan-made flowers and plants that flowers and plants made in mass producing countries lack.

Export values for flowers and plants



Source: "Trade Statistics of Japan," Ministry of Foreign Affairs

Export values for flowers and plants



Source: "Trade Statistics of Japan," Ministry of Foreign Affairs

		2016 (results)		2019 target	
		Export value (B. yen)	Major export partner countries	Export value (B. yen)	Major export partner countries
Export items of focus	Garden trees, bonsai, potted plants	8.03	China, Vietnam, Hong Kong	14	China, Hong Kong, EU
	Cut flowers	0.72	Hong Kong, US, China	1	Hong Kong, Singapore, US, Canada, Russia
	Total	8.75		15	
Flower bulbs, etc.		0.32			
Total		9.07			

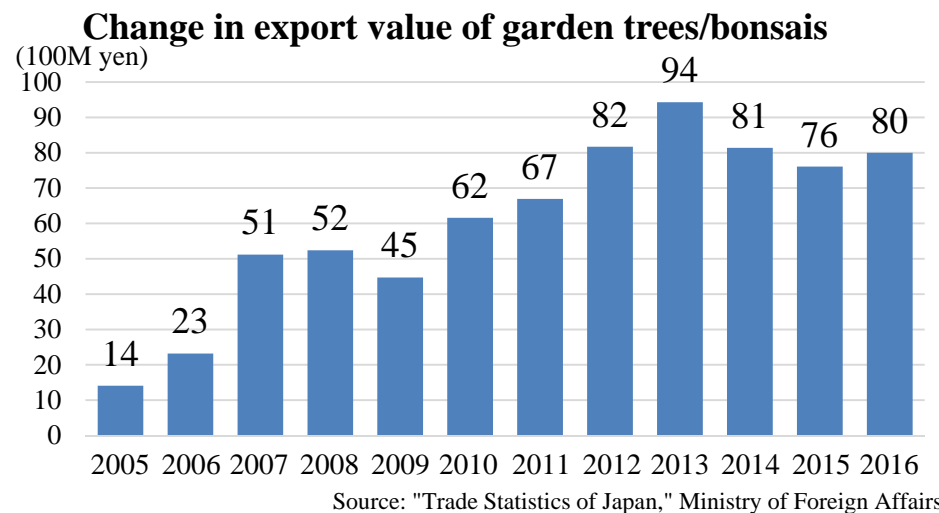
Source: "Trade Statistics of Japan," Ministry of Foreign Affairs



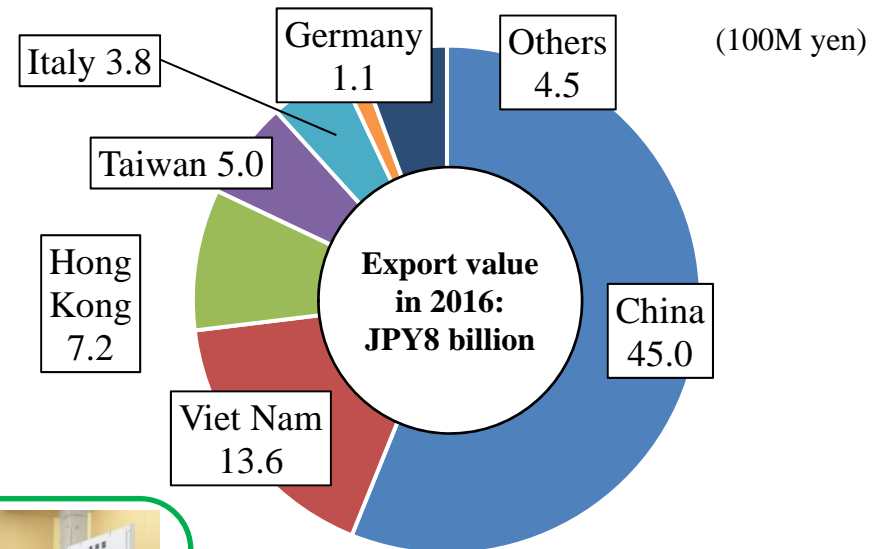
Demonstration by Japanese flower designers using Japan-made flowers (U.S.)

Export of Garden Trees and Bonsais

- Japanese garden trees are gaining a high reputation among wealthy people attracted by genuine Japanese gardens, and have grown to become a main pillar of Japanese flower exports. "Bonsai" has already become a universal word, and has fans all over the world including the EU (e.g. Italy, Spain), China and South Africa.
- The World Bonsai Convention was held in Saitama, Japan from April 27 to 30 in 2017, for the first time in 28 years. MAFF opened a plant quarantine counter at a bonsai shop booth, so as to facilitate export of bonsais, including purchasing by inbound tourists.
- Negotiating with EU to lift the export quarantine restriction on Japanese black pine. (Made a request for lifting the restriction in March 2016)



Export value of garden trees/bonsais (by country)
(100M yen)



[8th World Bonsai Convention (in Saitama)]

Period: April 27-30, 2017

Venue: Saitama Super Area/Omiya Sonic City

Turnout:

(Number of visitors)

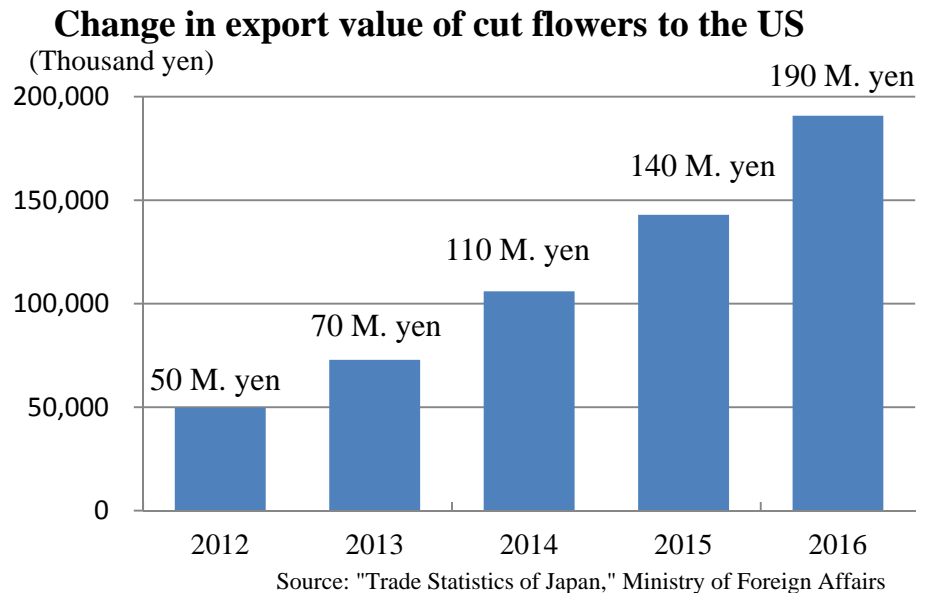
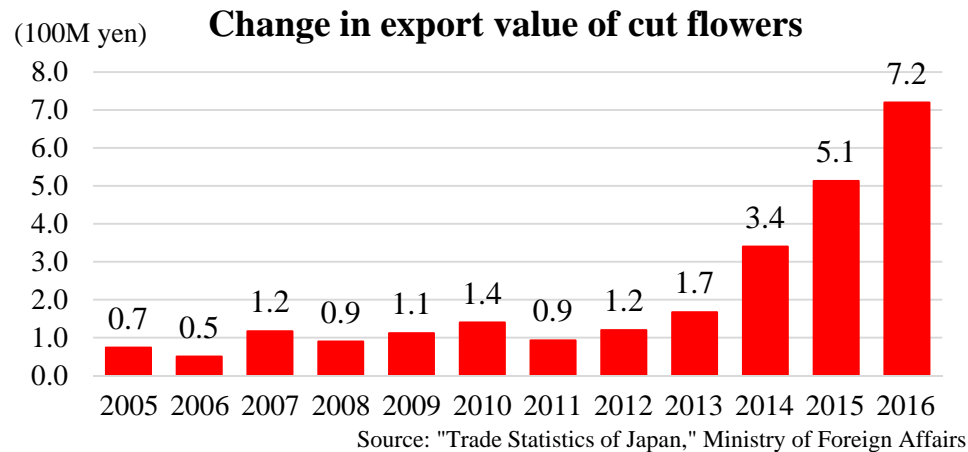
- General visitors: about 45,000
- Registered participants: about 1,200 (about 800 foreign participants)



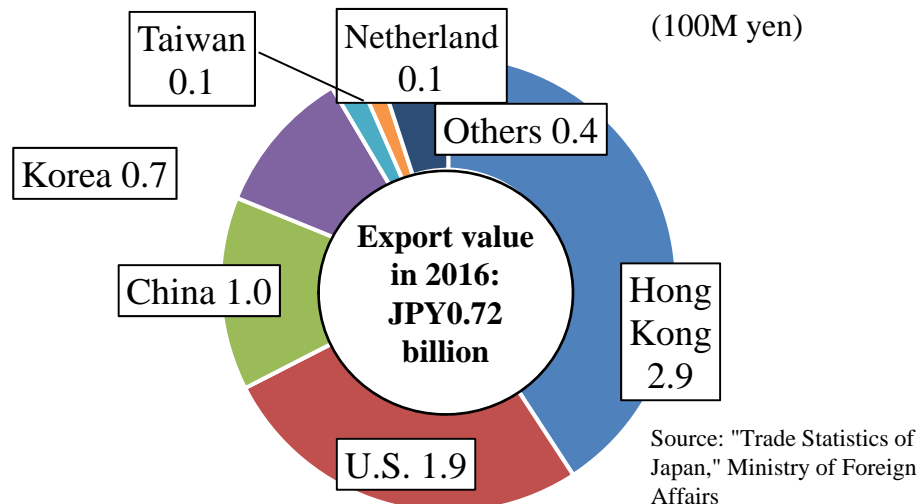
Plant quarantine counter

About Export of Cut Flowers

- Export value of cut flowers in 2016 increased to 0.72 billion yen.
- Particularly in the U.S., there is demand for rare flowers and gorgeous floral materials for high-end parties, fashion events, etc. As Japan started efforts for expanding the export of quality Japanese flowers, export value of cut flowers to the U.S. in 2016 reached 0.19 billion yen, or a 3.8-fold increase compared to four years ago.



Export value of cut flowers (by country)



Japan-made gloriosa used in decoration at the reception of the Consulate General of Japan in New York in celebration of the Emperor's birthday

5. Exports of Flowers and plants ②

○ In order to increase the flower and plants export value to 15 billion yen by 2019, it is important to study outstanding cases from major exporting countries and investigate the market situation of export partner countries of focus.

[Examples of investigations on one of the major cut flower exporting countries, Kenya]



- In order to acquire foreign currencies, the government implemented a national policy to stimulate cut flower production and export, with a focus on roses.
- A unified Kenyan brand was established and common promotional activities were carried out by the entire country.
- The cold chain from production areas to airports was established.
- Producers are engaged in the whole process, from production to processing, transportation, overseas marketing and branding.
- They are also making active efforts to obtain environmental certifications, such as MPS.



Unified Kenyan brand



Refrigerated warehouse in production area



Established cold chain



Produced and processed in production area according to the needs of export partner countries



Refrigerator truck owned by producer



Refrigerated warehouse at quarantine near airport

[Examples of investigations on one of the export partner countries of focus, Singapore]



- Singapore is a multi-ethnic country of the same size as Tokyo 23 special wards, and its population is about 5.54 million. Singapore has many residents from abroad.
- Agricultural land is scarce, and the only domestically-grown flower species is the orchid. In spite of this, Singapore is rich in plants and is called "Garden City." People have strong interest in flowers.
- In recent years, Singapore has been importing flowers from China, EU, Africa, etc., but species of imported flowers are limited.



Cut flower market heavily relying on import flowers



Store with flower showcase

[Examples of investigations on one of the export partner countries of focus, Hong Kong]



- Hong Kong is the logistics center for East Asia and thus is a very important export destination for potted plants and cut flowers. Many cargoes are forwarded to casinos in Macau.
- There is strong demand for flowers in vivid colors, such as red and yellow, which are believed to bring good luck, especially on Chinese New Year and Valentine's Day. Flowers are also in high demand at shopping malls, hotels, etc.
- It is important to improve the profile of Japan-made flowers that are rich in variety and have delicate colors.



Flower shop street filled with people and bouquet in vivid colors



Hotel lobby



Entrance at a shopping mall

Export Japanese Flowers and Plants ,and then Culture to the World through Collaboration among Producers(year-round supply etc.)

To EU that has a rich flower and plant culture and Russia that has potential demand!



Tulips



Hokkaido



Delphiniums

Iwate



Gentians

Niigata

Ranunculus



Nagano

Chiba



Garden trees

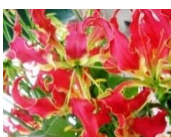


Tropical orchids

Aichi

Kagawa

Kochi



Gloriosas

Miyazaki



Sweet peas



Bonsais



Continue to develop new sales channels through overseas market investigations!

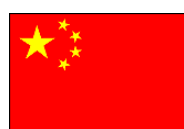
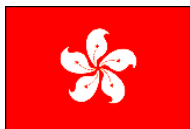
To North America beyond the Pacific!
(US, Canada)



Measures to be taken

- Collecting information on the situation of overseas markets
- Communicating information on Japanese flowers and plants including culture
- Improving quality control technologies to prepare for long distance transportation
- Measures for plant quarantine, such as the development of nematode control and elimination technologies
- Inviting overseas buyers

To Asian countries with rapid economic growth!
(Hong Kong, Singapore, China)



Case 1

Ashiro Rindo (Hachimantai Flower Production Group, Shin-Iwate Agricultural Cooperative)

- Efforts for Developing World-Class Brands with Original Varieties -

Won the Emperor's Cup Award at the FY2015 Agriculture, Forestry and Fisheries Festival

<management>

- Gentian production area that accounts for approximately one-fourth of cultivation area and approximately 30% of the shipment volume in Japan.
- [Number of members] 170 farmers; [Cultivation area] 110ha; [Shipment Volume] Cut flowers - 24.69 million units, Potted flowers - 0.14 million units. The sales have been over 1 billion yen for 10 consecutive years since 2005.

<initiatives>

(1) Producers and local government work together in growing regional original varieties

30 kinds of cut flowers and 9 kinds of potted plants are currently being produced. In developing these varieties, Ashiro Rindo Development Corporation, whose employees are all cooperative members, concluded a joint research contract with the Hachimantai Flower Research Center. They cooperated in the characteristics inspection of candidate lineages and establishment and management of test fields for growing parent strains. The corporation also entered into a license agreement on exclusive user rights with the city government, which limits the use of original varieties to cooperative members. In addition, producers contribute 2% of their sales to the research fund so as to ensure stable corporation management and inclusion of producers' opinions in the process of variety development.



"Red Gentian" developed under joint breeding with New Zealand

(2) Establishment of production area brands built on strong ties among producers

The corporation has established the brand named "Ashiro Rindo" and an advantageous position at markets with [1] stable shipment under a joint sales system that maintains the lineage shipment ratio at 90% or more; [2] production of quality original varieties by jointly raising all seedlings, visiting all fields and providing instruction, and carrying out strict self-inspection; and [3] cost reduction efforts, such as strict freshness preservation measures and mechanization of shipment and adjustment work.

(3) Export and overseas production of cut flowers, and export of intellectual property

Export of cut flowers to Netherlands started in 2002. In recent years, new sales channels have been developed in Hong Kong, Singapore, and North America. As for potted flowers, the corporation entered into a cultivation licensing agreement with overseas bodies and is also working on the export of intellectual property.

Overseas production is carried out in New Zealand and Chile based on cultivation agreements. Cut flowers can be stably supplied throughout the year by cultivating them in the southern hemisphere in which the seasons run the opposite of Japan.

Case2

Overseas Sales of the Prefecture-Developed Carnation Varieties, “Mini Tiara” Series (Kagawa Prefecture)

1. Overview

- Kagawa Prefecture entered into a five-year license agreement with Hilverda Kooij, a major seed and seedling company in Netherlands, for the overseas production and sales of seedlings of two carnation varieties under the prefecture-developed “Mini Tiara” series.
- The two varieties subject to licensing are “Mini Tiara Coral Pink” and “Mini Tiara Lilac.”
- User countries are EU, Kenya and Colombia.
- It is hoped that sales in overseas markets will raise the international profile of the prefecture’s original varieties and increase not only overseas demand, but also significantly increase domestic demand.

2. History

- In 1994, prefectural agricultural test fields started interspecific crossing between carnation cultivars and wild dianthus.
- In 2007, the prefecture grew a new carnation variety “Mini Tiara,” which has pointed petals.
- In 2011, “Mini Tiara Coral Pink” and “Mini Tiara Lilac” were grown.
- The petal shape and color variations of “Mini Tiara” caught the attention of Hilverda Kooij. In March 2012, the company and Kagawa Prefecture entered into two-year agreement on cultivation in Netherlands.
- In January 2014, the license agreement was concluded (currently preparing to file variety registration applications to above mentioned three countries (regions)).

【Carnation: “Mini Tiara” series】

It was named after the ornamental crown for women as the petal shape resembles it and the flower is small and pretty. Seven varieties have been developed so far, for which variety registration applications have been filed.

Name of the seven varieties:

“Mini Tiara Pink,” “Mini Tiara Cream,” “Mini Tiara Coral Pink,” “Mini Tiara Lilac,” “Mini Tiara Star Yellow,” “Mini Tiara Milk White,” “Mini Tiara Baby Pink,”

【Hilverda Kooij】

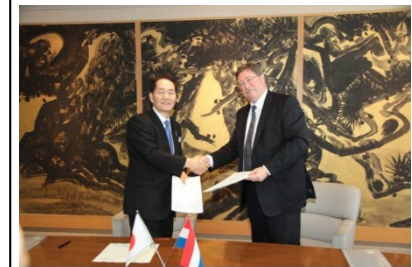
One of the world’s largest seed and seedling companies that develop flower variety and seed/seedling sales with a focus on carnations. It accounts for approximately 20% of the world’s carnation seed and seedling production. Many of the varieties developed by the company are also produced in sold in Japan.



Mini Tiara Coral Pink



Mini Tiara Lilac



Signing ceremony with Kagawa Prefectural Governor Hamada and Hilverda Kooij CEO Tas (January 17, 2014)

6. Japanese Flowers and Plants in the world

- Japan participated in the EXPO 2016 Antalya International Horticultural Exposition held in Antalya, Turkey, from April 23 to October 30, 2016.
- During this exposition, approximately 160,000 people visited the Japanese government's exhibition, which won the gold prize for the indoor exhibition section. In addition, many Japan-made flowers and plants also won prizes at the contest with some attaining record high scores, gaining international reputation for Japanese flowers and plants.

○ Outline of the EXPO 2016 Antalya

Name: EXPO 2016 Antalya

Theme: Flowers and Children - A Green Life for Future Generations

Period: April 23 to October 23, 2016

Participating countries/regions:
55 (including Turkey)

Number of visitors:
4.5 million

Turkey's first EXPO



○ Indoor exhibition at the EXPO 2016 Antalya



Government exhibition



Flowers for competitions



160 thousand people has visited



Japan won many medals

○Varieties that won the gold prize at the contest



Tulip



Haru-otome



Tulip



Haru-no-awayuki



Tulip



Nagori-yuki



Lily



Petit Luna



Lily



Petit Cheminée



Lily



Petit Selene



Lily



Petit Fraise



Lily



Petit Blanc



Bonsai



Shinpaku (Chinese juniper)



Bonsai



Acer palmatum



Eustomas

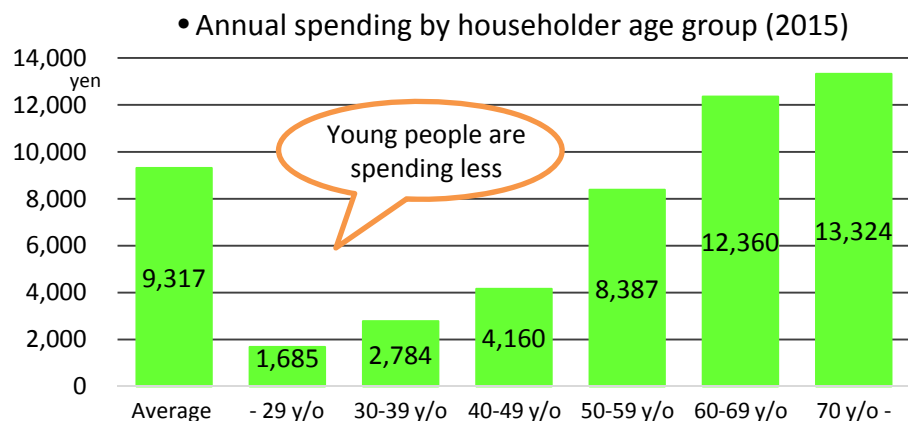
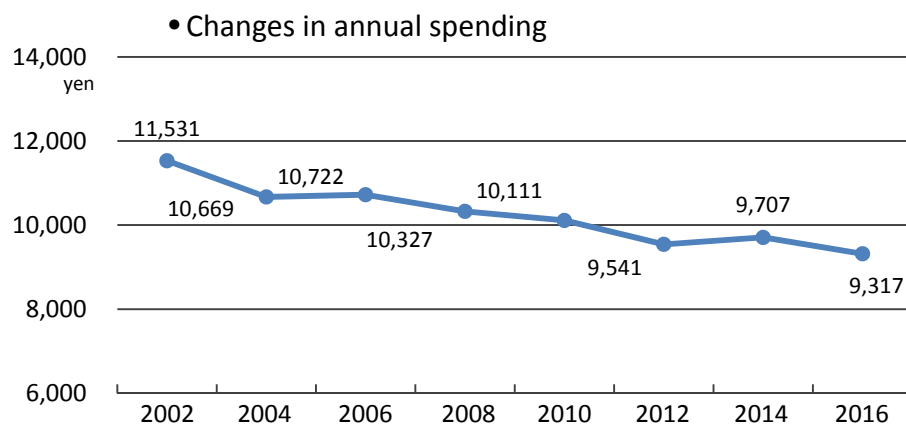


Miyabi

7. Consumption of Flowers and Plants

- Spending of cut flowers has been on decrease over a long term. According to the statistics by the age group of heads of household, the younger generation spends less on cut flowers.
- Among flower and plants dealers, retailers specialized in flowers and plants constitute 60% of number of stores and 70% of sales turnover.

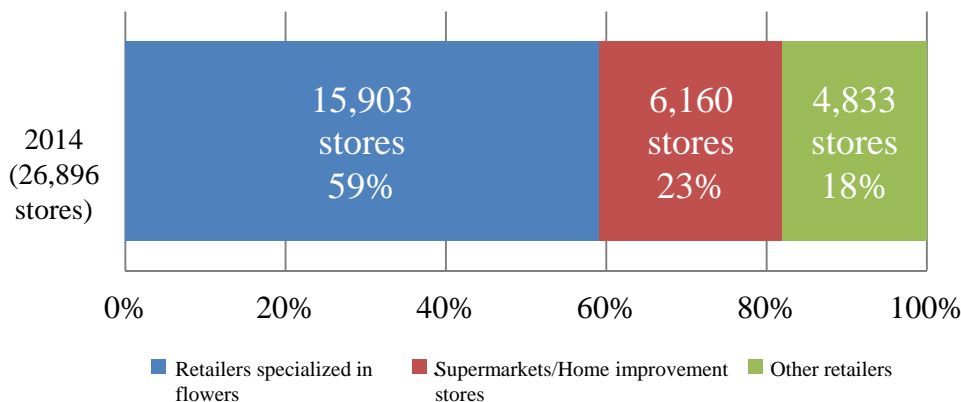
○ Household spending on cut flowers



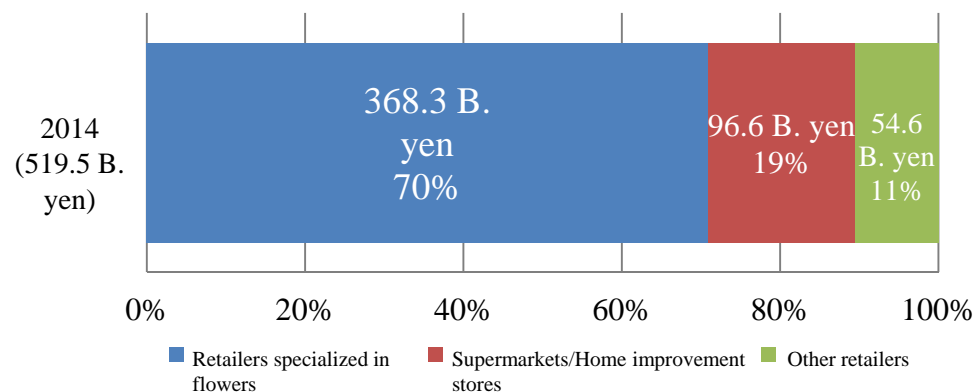
Source: "Annual Report on the Family Income and Expenditure Survey," Statistics Bureau, Ministry of Internal Affairs and Communications

Note: Figures for 2008 and onward are the spending of "households with two or more members (including agriculture, forestry and fishery households)." Other figures are the spending of "households with two or more members excluding agriculture, forestry and fishery households."

○ Number of flower and plants dealers



○ Sales of flower and plants dealers



Source: "Census of Commerce," Ministry of Economy, Trade and Industry

Note 1: Figures for retailers specialized in flowers, etc. are the total of the figures for "retailers specialized in flowers" and "retailers mainly handling flowers (50% or more of the goods dealt in are housing-related goods (including flowers and garden trees))."

Note 2: Figure for supermarkets/home improvement stores is the figure for specialized supermarkets.

Expanding Demand: Revitalization of Floral Culture

○ In order to revitalize floral culture, the following measures need to be promoted:

- use of flowers and plants in city planning and at public facilities and other facilities where flowers and plants bring about beneficial effects, such as social welfare facilities;
- promotion of educational programs using flowers and plants (floral education) for pupils and students and regional events using flowers and plants; and
- promotion of use of flowers and plants in everyday life, succession of floral traditions, and creation of new floral culture.

Use of flowers and plants in city planning and at public facilities

- Indoor greening at offices, etc.
- Greening of stations and airports
- City planning featuring flowers and greens



Use of flowers and plants in education and regional activities

- Promotion of regional floral education activities
- Flower festivals held in individual prefectures



Dissemination of benefits of flowers and plants

- Utilizing flowers' healing effects at social welfare facilities, etc.



Succession of floral traditions



Creation of new floral culture

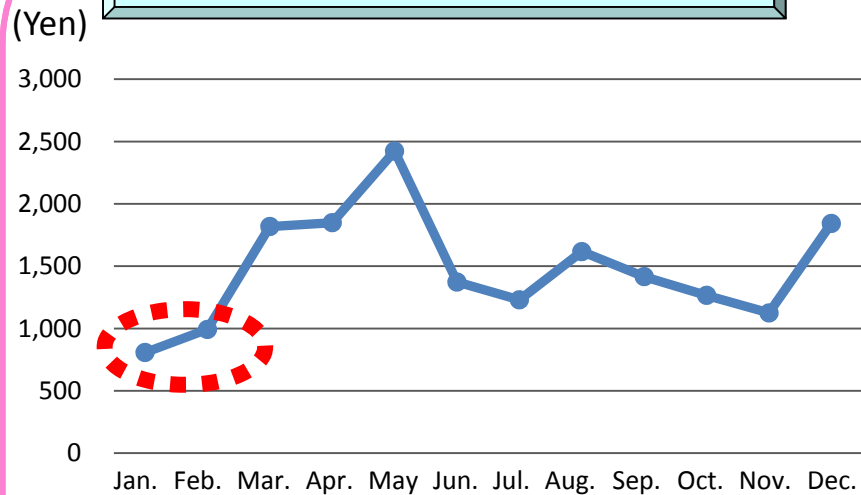


Flower Biz Flower Friday
きっかけに花を。

Creation of New Demand

○Creating new demand through campaigns, including “Flower Valentine’s Day,” “Flower Biz” and “Flower Friday.”

Spending on cut flowers and garden supplies (2016)



Source: “Family Income and Expenditure Survey,” Ministry of Internal Affairs and Communications

The “Flower Valentine’s Day” campaign is carried out to create new demand in January and February as spending in these months is low.



Bring flowers into your life!

Flower Biz

Work: Flowers at office
Have new flowers at your
office every Monday

Flower Friday

きっかけに花を。

Life: Flowers in everyday life
Send flowers or bring flowers
home every Friday

Introduce flowers into your lifestyle.

Keep them close in your workplace and home.

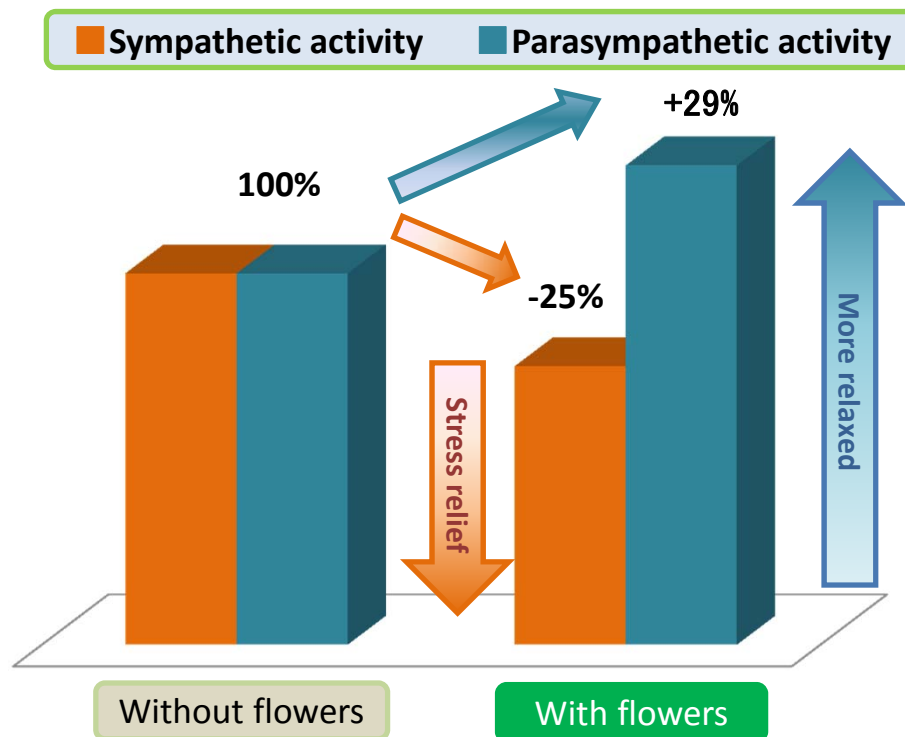
“Flower Biz” “Flower Friday”

How about having flowers around you more frequently in your everyday life and making your living space more comfortable?

Bring flowers into your life for your health!

Benefits of Flowers

- Flowers and plants have stress relief effects and adjustment effects to optimize people's physical conditions.



	Sympathetic activity (LF/HF)	Parasympathetic activity (HF) (msec2)
With flowers	1.51	828.6
Without flowers	1.13	1072.6

Sympathetic activity: Heightens when nervous and stressed
Parasympathetic activity: Heightens when relaxed

Programs for Hospitals/Social Welfare Facilities Leveraging Benefits of Flowers and plants

- To leverage benefits of flowers, some hospitals and social welfare facilities have created green space within their buildings or introduced gardening activity as their programs. These efforts are received well by patients.

Program for hospital leveraging flowers and plants



Decorating 120 locations within hospital with flowers.
"Flower club"
held once a week



Creating green space at the four-storied stairwell entrance

Program for social welfare facilities leveraging flowers and plants



Group planting workshop



Flower arrangement workshop

[Reference] Progress of Discussion on the Flowers and Plants Promotion Act

- The Parliamentary Association for the Flower Industry* of the Liberal Democratic Party (LDP) requested LDP's Agriculture and Forestry Division to formulate a bill on flowers and plants industry revitalization.
- In response to this, the Task Force for Examining the Bill to Revitalize the Flower Industry headed by Tetushi Sakamoto (director of the Upland Farming Subcommittee) under the Vegetable, Fruit and Upland Field Crops Subcommittee under the Agriculture and Forestry Division, LDP. The members, including Gen Nakatani (Chairman of the Research Commission on Agriculture, Forestry and Fisheries Strategy), Ken Saito (Director of the Agriculture and Forestry Division), and Takeo Kawamura (Director of the Parliamentary Association for the Flower Industry), are working on lawmaker-initiated legislation (Parliamentary Vice-Minister for Finance Yasuhiro Hanashi, who headed the Task Force until the second meeting attends subsequent meetings as an observer).

*The Parliamentary Association for the Flower Industry was established in 1987 by the late Takami Eto. The current chairman is Takeo Kawamura and director is Taku Eto (former Vice Minister of Agriculture, Forestry and Fisheries).

2013

Source: Prepared by the Policy Research Council, Liberal Democratic Party

- Sep. 25** 1st meeting of the Task Force for Examining the Bill to Revitalize the Flowers and Plants (LDP)
(2nd meeting on Oct. 3, 3rd meeting on Oct. 25, 4th meeting on Nov. 15)
- Nov. 26** 5th meeting of 1st meeting of the Task Force for Examining the Bill to Revitalize the Flowers and Plants(LDP)
Bill completed
- Dec. 4** Joint meeting with the Agriculture and Forestry Division (LDP) Bill approved

2014

- Feb. 6** Meeting of the Agriculture, Forestry and Fishery Division (Komeito)
- Feb. 13** Meeting of the Policy Research Council (Komeito) Bill approved by Komeito
- Feb. 20** Examination at the Policy Research Council Board (LDP)
- Feb. 21** Meeting of the General Council
Meeting of the policy planners from the ruling parties Bill approved by ruling parties
- Mar. 5** Interviews with organizations at the meeting of the Agriculture, Forestry and Fishery Division (DP)
- Apr. 8** Opinion exchange between DP executives and flower-related organizations
- May 29** Bill screening (LP)
- May 30** Bill screening (DP), (JIP), (UP)
186th ordinary session of the Diet
- Jun. 5** Plenary session of the House of Representatives Approved (Approved on June 4 by the Committee on Agriculture, Forestry and Fisheries, House of Representatives (proposed by the Chairman, approved))
- Jun. 20** Plenary session of the House of Councilors Approved and passed (Approved on June 19 by the Committee on Agriculture, Forestry and Fisheries (explained by Chairman from the House of Representatives, approved))
- Jun. 27** Promulgation of the Act (Act No. 102 of 2014)
- Dec. 1** Enforcement of the Act

Overview of the Flowers and plants Promotion Act (Act No. 102 of 2014)

1. Purpose

To achieve the sound development of the flower and plant industry and enhance public mental well-being

2. Definition

Flowers and plants: Plants for ornamental purposes
Flower and plant industry: Business of production, distribution, sale or new variety development

3. Basic policies, etc.

- The Ministry of Agriculture, Forestry and Fisheries is to formulate basic policies for revitalizing the flower industry and floral culture
- Prefectures are to formulate a plan for revitalizing the flower and plant industry and floral culture
- The national government, local governments, companies, research institutions, etc. are to strengthen mutual collaboration.

4. Measures for the flower and plant industry

- Stabilization of management by producers (Article 6)
- Promotion of productivity and quality improvement (Article 7)
- Sophistication of processing and distribution (Article 8)
- Consideration for the importance of freshness preservation (Article 9)
- Promotion of export (Article 10)
- Special measures under the Plant Variety Protection and Seed Act (Article 13)
- Promotion of research and development (Article 15)

5. Measures for floral culture

- Promotion of use of flowers and plants at public facilities, etc. (Article 16, paragraph (1))
- Promotion of “floral education” (Article 16, paragraph (2))
- Promotion of use of flowers and plants in everyday life (Article 16, paragraph (3))

6. Other measures

- Holding of expositions (Article 17)
- Commendation of contributors to the revitalization of the flower and plant industry and floral culture (Article 18)
- Government aid aimed at the smooth implementation of revitalization plans (Article 19)
- Establishment of the Flower and Plant Utilization Promotion Council (Article 20)

Overview of the Special Measures under the Plant Variety Protection and Seed Act (Article 13 of the Act)

- Special measures under the Plant Variety Protection and Seed Act are applied to varieties cultivated as a result of a R&D project plan certified by the Minister of Agriculture, Forestry and Fisheries.
- Specifically, **application and registration fees (from first year to sixth year) are reduced by three-fourths** concerning the cultivation of new varieties **contributing to the strengthening of the industry's international competitiveness, such as those with strong disease resistance and longer vase life.**

Special measures under the Plant Variety Protection and Seed Act

Category	Standard	Special measure
Application fee	47,200 yen	11,800 yen
Registration fee		
1st-3rd year	6,000 yen/year	1,500 yen/year
4th-6th year	9,000 yen/year	2,250 yen/year
7th-9th year	18,000 yen/year	—
10th-30th year	36,000 yen/year	—

Number of certified R&D project plans (as of July 2017)

18

New variety cultivation subject to the special measures under the Plant Variety Protection and Seed Act (idea)



Expansion of export

New sweet pea variety with high resistance against gray mold that can be exported under high temperatures and high humidity during summer



Regaining of domestic share

New chrysanthemum variety with high tolerance for high temperatures that can be stably supplied during the high demand period in summer

Project for Taking Urgent Action to Promote Exports of Japan-Produced Flowers and Plants

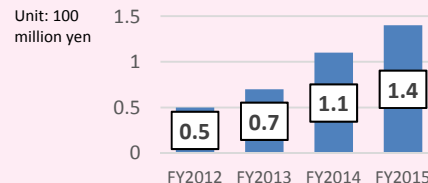
[Included in the FY2016 supplementary budget of 2,997 million yen]

Current situation of exports of Japan-made flowers and plants

- As cheap mass-produced cut flowers from Colombia and Kenya dominate the global market, Japan has promoted Japan-made flowers mainly for flower designers in the US, etc., taking advantage of their quality and uniqueness of varieties (sweet peas, ranunculus, gloriosas, etc.). As a result, the export of cut flowers is steadily growing (0.1 billion yen (2013)→0.3 billion yen (2014)→0.5 billion yen (2015)).



Photos: Cited from the website of Takii & Co., Ltd.



Changes in the export value of cut flowers to the US

- The spread of ikebana culture is effective in promoting Japan-made flowers. However, the situation is such that flowers available in individual countries are used.
- The same transportation method as domestic shipment is used for exports. Boxes are not standardized and newspapers are used for packing, which lessens the brand value.



Japanese market

Challenges concerning exports of Japan-made flowers and plants

- In order to further increase exports, it is necessary to hold trade fairs and business meetings and constantly provide opportunities for people to see and purchase Japan-made flowers and plants.
- It is necessary to provide Japan-made flowers in a timely manner to ikebana events in overseas countries.
- It is necessary to improve transportation materials (box, buffer, etc.) for exports that can contain multiple items at a time and have a high customer appeal effect.

Content of the project

➤ Strengthening of promotional activities in export partner countries

With a view to further expanding overseas markets, constantly promote promotional activities for Japan-made flowers via local shops, etc.



➤ Promotion of exports utilizing ikebana events

Promote exports to countries in which ikebana events are held by providing Japan-made flowers and vases as a package to such events

➤ Standardization of the design of export packaging materials

Support efforts for standardizing the design of export packaging materials, with a view to improving the brand value of Japan-made flowers



Kenya uses standardized designs for cardboard boxes for export

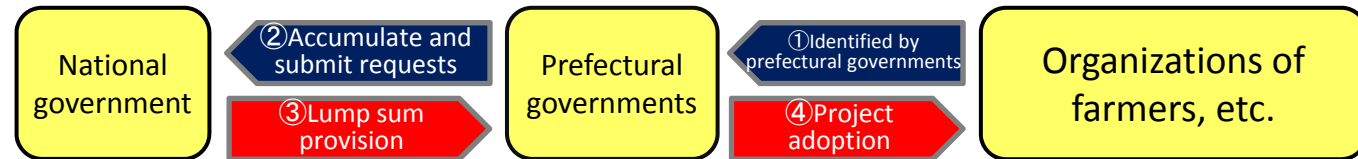
Project to Create Facilities Aimed at Expanding Exports of Agricultural and Livestock Products

FY2016 supplementary budget: 10,000 million yen

In order to achieve aggressive agriculture, forestry and fisheries, this project supports the development of jointly used facilities and wholesale market facilities necessary to expand exports and strengthen agriculture, from production to distribution, which will contribute to the improvement of quality and value added.

- Subject of subsidies: Jointly used facilities, wholesale market facilities
- Subsidy ratio: The ratio is fixed for all prefectures (for project implementers, 50% of project costs, etc.)
- Project implementers: Prefectural governments, municipal governments, agricultural organizations, etc.

▪ Flow of the project:



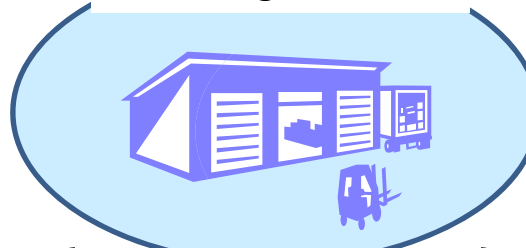
(Examples of facilities)

HACCP-certified meat processing facilities



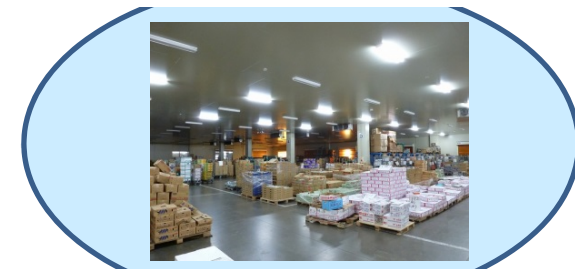
US, EU, etc. require HACCP certification for meat processing facilities

CA storage facilities



Establishing a system for long-term preservation that enables supply of fruits and vegetables to export partner countries in high demand periods

Wholesale market facilities for the cold chain



By shutting out outside air and controlling the temperature inside wholesale market facilities, establish a comprehensive cold chain system up to export destination countries

Project to Develop Facilities for Expanded Export of Agricultural and Livestock Products (Naniwa Flower Auction Co., Ltd (Osaka City, Osaka Prefecture)): Expanding Exports of Quality Cut Flowers with Optimal Temperature Control

Current situation

- The exports of cut flowers have grown thanks to the promotional activities for overseas flower designers conducted by Naniwa Flower Auction.
2012: 0.5 million yen/year → 2015: 160 million yen/year
[Japan: 500 million yen/year]
- However, this wholesale market does not have any dedicated facilities for exports.

Osaka Tsurumi Regional
Flower Wholesale Market



Issues in expanding exports

○ Maintenance issues

- ① Low efficiency due to manual sorting
- ② Short vase life due to the lack of thorough cold chain
- ③ Lack of fumigation facilities, which leads to the disposal of products at quarantines in export destination countries.

Sick ranunculus



○ Distribution issues

- Individual production areas use different boxes, which damages the brand image and raises logistics costs

Solutions for the issues

Tangible aspects

- Establish collection and shipment facilities in the vicinity of the wholesale market.

Intangible aspects

- Standardize the designs and specifications for export packing materials

Plan after facility development

○ Solving maintenance issues

- ① Effective cargo handling using dock shelters (entrance used for cargo shipment and receipt that allows workers to directly bring the products from the truck to storehouse)
- ② Low-temperature packing center that can be used for the sorting of flowers, and storehouse that allows for item-specific temperature control
- ③ By establishing a fumigation space as a disease and pest control measure, improve efficiency and flowers' longevity and reduce risks of loss due to disposal

○ Solving distribution issues

- Improve the brand image of Japan-made flowers and reduce logistics costs

- Objective: Increasing annual export value from 160 million yen to 550 million yen
Establishing the image of Japanese flowers as high-end cut flowers

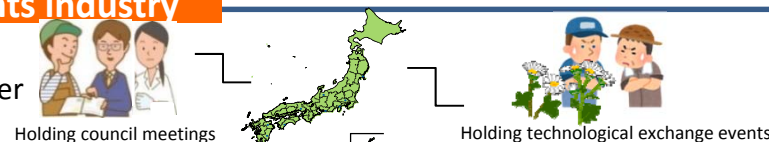
Project to Promote Innovative Measures for Domestically Produced Flowers (Enhanced)

Approved budgetary request for FY2017: 751 (702) million yen

- In order to regain share and expand exports of domestically produced flowers, this project works on the establishment of a cost-efficient system that enables the stable supply of quality cut flowers in high demand periods. It also supports efforts for shortening time for raising seedlings, which is necessary for strengthening the production system for garden trees and bonsais.

1. Support for coordination among people in the flower and plants industry

- Holding meetings of prefectural councils, which consist of producers, researchers, distribution and sales companies, exporters, and other people involved in the flower and plant industry, to discuss measures to revitalize the regional flower industry.



Underlined are enhanced measures.

2. Strengthening production and supply systems to enhance the strengths of domestically produced flowers and plants

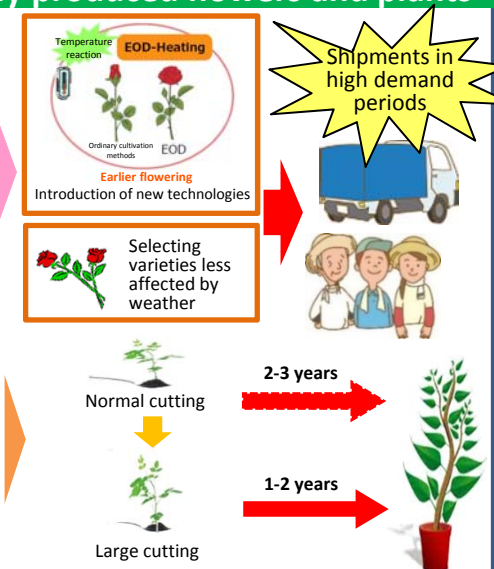
- In order to strengthen production supply systems to enhance the strengths of diverse, quality Japan-made flowers, support [1] demonstration of flower processing and distribution under wide-area collaboration, [2] improvement of logistics efficiency, and [3] introduction of management technologies to extend vase life.
- In order to achieve the stable supply of domestically produced cut flowers that can compete with imported products, support efforts to realize low-cost production and shipping of quality cut flowers in high demand periods, by such means as the demonstration of new technologies to control quality loss with greenhouse temperature control (e.g. EOD heating), and selection of varieties less affected by weather conditions.
 - *End-of-day-Heating Treatment
A technology to reduce production costs while maintaining the quality and growth condition at the same level as ordinary cultivation methods, by controlling temperature before and after sunset
- In order to strengthen the production system to expand exports of garden trees and bonsais, support efforts to shorten the time for raising seedlings through the utilization of large-sized plant cutting and demonstration of innovative cultivation practices.

(Current situation of cut flowers)

- Cheap cut flowers are imported in volume in high demand periods (ex. *obon*, *higan*)
- Although there are needs for domestic products, production areas' supply capability falls short.

(Current situation of garden trees and bonsais)

- Garden trees and bonsais are in high demand overseas due to Japanese gardens and the bonsai boom overseas.
- There is a risk of running out of exportable garden trees and bonsais due to weakening of the domestic production system.



3. Increasing demand for domestically produced flowers and plants

- In order to increase demand for domestically produced flowers and plants, promote [1] holding of flower contests and floral culture-related exhibitions, [2] floral education, and dissemination of benefits of flowers, [3] use of flowers and plants at offices, nursing homes, etc., and [4] promotional activities in collaboration with other industries.

Bring flowers into your life!



Structure of the Project to Promote Innovative Measures for Domestically Produced Flowers and Plants

Under this project, 47 prefectures across Japan have established councils that unite people in the flower and plant industry. These councils carry out various measures across the country to promote collaboration among people in the industry, strengthen production and supply systems, and expand demand for flowers and plants.

Regionally promoted programs	Nationally promoted programs
1. Support for collaboration among people in the flower and plant industry	
<ul style="list-style-type: none"> • Discussion on measures for revitalizing the flower and plant industry • Holding technological exchange events, developing technological manuals 	<ul style="list-style-type: none"> • Activities related to the production and sale of flowers and plants • Establishment of a system for the stable supply of scarce floral materials
2. Strengthening of production and supply systems to enhance the strengths of domestically produced flowers	
<ul style="list-style-type: none"> • Demonstration of flower processing and distribution under wide-area coordination • Examination and demonstration concerning the improvement of logistics efficiency • Examination and demonstration of recycling systems • Formulation of export strategies • Establishment of perfect cold chain • Export measures to be carried out by production areas • <u>Demonstration concerning the stable supply of domestically produced flowers in high demand periods</u> • <u>Support for efforts to shorten the time for raising seedlings of garden trees and bonsais</u> 	<ul style="list-style-type: none"> • Measures to extend flowers' vase life
3. Expansion of demand for domestically produced flowers	
<ul style="list-style-type: none"> • Holding flower contests, exhibitions, etc. • Promotion of floral education experiences at schools, social welfare facilities, etc. • Promotion of use of flowers and plants at companies and nursing care facilities (Commendation of best practices) • Dissemination of information on floral culture and domestically produced flowers and plants 	<ul style="list-style-type: none"> • Verification and dissemination of the benefits of flowers and plants • Fostering of floral education practitioners • Creation of new demand for flowers and plants in everyday life



Regaining share and expanding exports of domestically produced flowers and plants

Initiatives for Next-Generation Greenhouse Horticulture

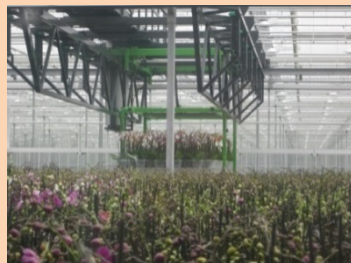
- In order to improve the profitability of greenhouse horticulture in Japan, Centers for Next-Generation Greenhouse Horticulture will be established, by arranging Netherlands' **highly profitable greenhouse horticulture model** to suit the Japanese flower industry.
- The Centers for Next-Generation Greenhouse Horticulture are expected to raise incomes and create jobs through [1] **improvement of productivity by the introduction of advanced environmental control technologies**, [2] **breaking dependence on fossil fuels by utilizing regional energy sources**, [3] **introduction of large-sized greenhouses and accumulation of facilities for all processes from production to shipment**.

Greenhouse horticulture in Netherlands

- Cluster formation under industry-academia-government collaboration
- Pursuing mechanization and ICT utilization
- Yield of tomatoes per 10a: 50t or more (average in Japan: 11t)
- Utilizing abundant natural gas to supply heat, electricity and CO₂



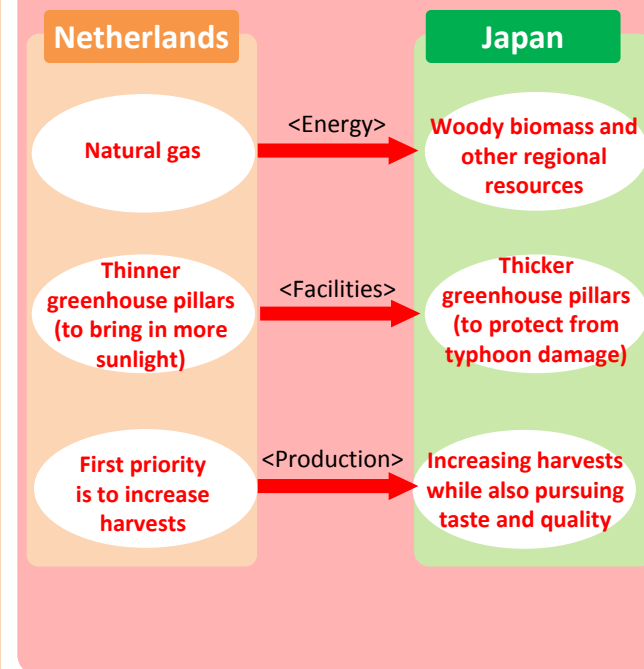
Accumulated facilities



Automated production
(moving phalaenopsis orchids)

Arrangement into a Japanese model

★ Arrangements for Japan



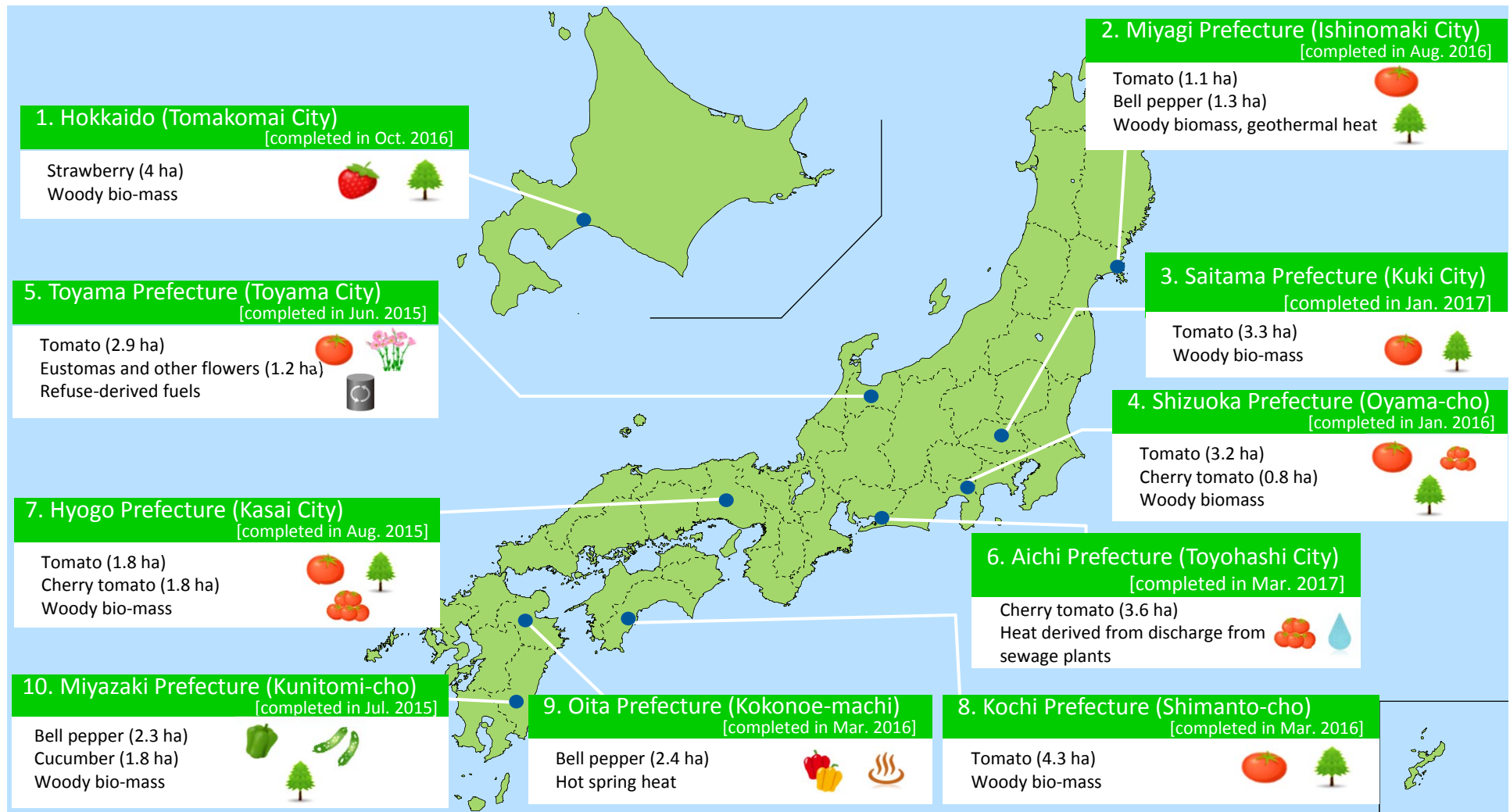
Next-generation greenhouse horticulture

The Ministry of Agriculture, Forestry and Fisheries supports the development of **Centers for Next-Generation Greenhouse Horticulture in ten locations.**

- Accumulate a large concentrations of facilities and create centers to carry out all processes from energy supply using woody bio-mass and other regional resources, to production, preparation and shipment.
- Break dependence on fossil fuels, while reducing costs and creating local jobs
- Promote collaboration between the agriculture industry and other industries to utilize their knowledge and knowhow concerning ICT etc.
- Achieve all-season, planned production with advanced environmental control

Areas Subject to the Project to Accelerate the Introduction of Next-Generation Greenhouse Horticulture

- The development of Centers for Next-Generation Greenhouse Horticulture started in FY2013 in ten locations across Japan, all of which are completed in FY2016.
- Local governments, producers, consumers, etc. formed consortiums to promote large-scale greenhouse horticulture utilizing regional energy and advanced environmental control with ICT.



Enhancement of Initiatives for Next-Generation Greenhouse Horticulture

[Approved budgetary request for FY2017: 2,501 (2,540) million yen]

- Challenges in expanding initiatives for next-generation greenhouse horticulture include the scarcity of farmers equipped with necessary technologies for shifting to next-generation greenhouse horticulture, and securing the enormous funds and vast land required by large-scale next-generation greenhouse horticulture.
- For this reason, initiatives for next-generation greenhouse horticulture will be enhanced using the following two approaches.
 - ① Support for demonstration, training, and other regional activities for learning technologies, with an aim of accelerating the shift to next-generation greenhouse horticulture
 - ② Support the development of large-scale next-generation greenhouse horticulture facilities and analysis and dissemination of the results and knowhow.

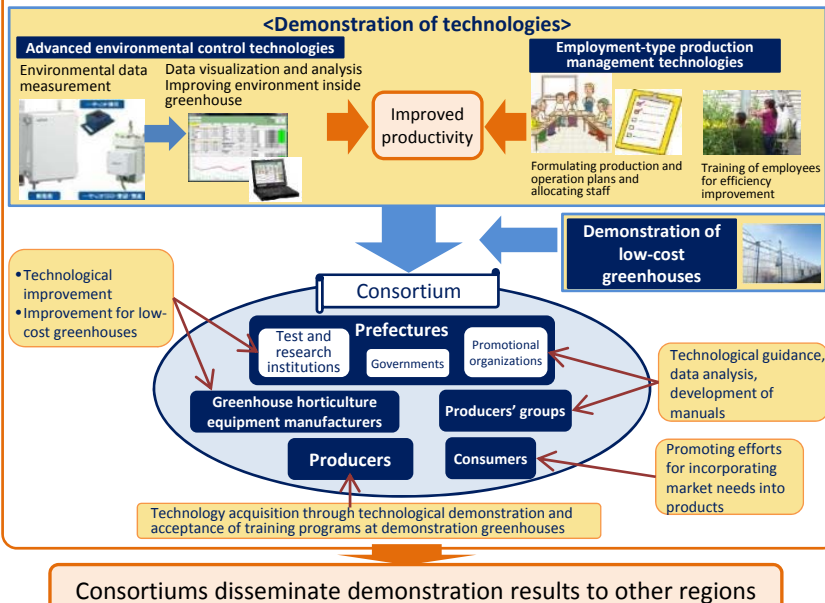
① Promotion of the shift to next-generation greenhouse horticulture

Project to Support the Expansion of Next-Generation Greenhouse Horticulture (Project to Support Technology Acquisition for Next-Generation Greenhouse Horticulture)

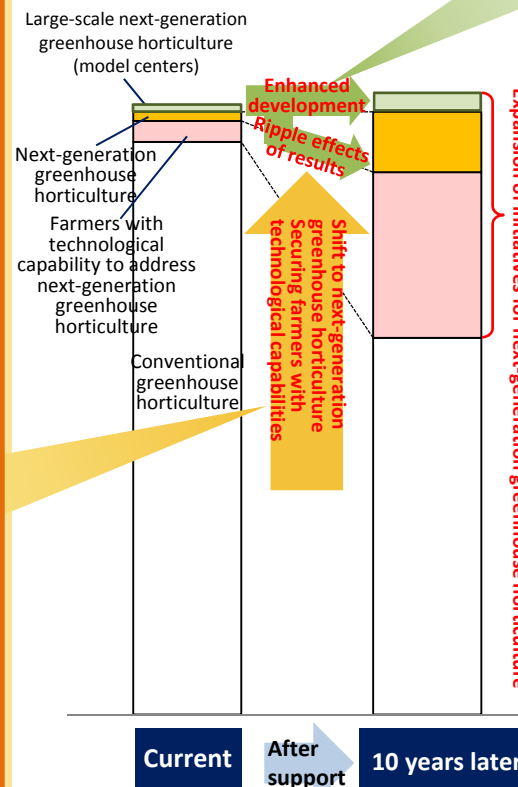
- Support the **development and cross-regional dissemination of regional systems** for acquiring technologies through **demonstration and improvement of technologies, acceptance of training programs** at demonstration greenhouses, etc. aimed at the acceleration of the shift to next-generation greenhouse horticulture

Development of technology acquisition systems for next-generation greenhouse horticulture

Consortiums carry out **demonstrations, training**, etc. concerning technologies



Scheme for expanding initiatives for next-generation greenhouse horticulture



② Promotion of large-scale next-generation greenhouse horticulture

Subsidies for the establishment of strong agriculture (subsidies preferentially provided to next-generation greenhouse horticulture)

- Support the **development of large-scale next-generation greenhouse horticulture facilities** utilizing advanced environmental control technologies, regional energy technologies, and energy saving technologies.



Accumulation of facilities for all processes from production to shipment

Project to Support the Expansion of Next-Generation Greenhouse Horticulture (Project to Promote the Regional Expansion of Next-Generation Greenhouse Horticulture)

- Support the Centers for Next-Generation Greenhouse Horticulture in promoting their efforts for **disseminating information regarding seminars that report results, etc.**
- Support the development of **manuals**, etc. that analyse and summarize knowhow gained at the Centers for Next-Generation Greenhouse Horticulture



[Reference] Output of Flowers and Plants by Prefecture (2015)

(Unit: B. yen)

Prefecture	Output	Major flowers in production	Prefectural flower
Hokkaido	12.2	Statice①, carnation③, lily	Rugosa rose
Aomori	2.4	chrysanthemum, flowering trees and shrubs (pot-grown), eustoma	Apple tree
Iwate	4.3	gentian①, chrysanthemum, lily	Paulownia tomentosa
Miyagi	2.9	chrysanthemum, rose, Gerbera	Lespedeza thunbergii
Akita	3.1	chrysanthemum, eustoma, gentian②	Butterbur scape
Yamagata	6.9	rose③, eustoma, stock②	Safflower
Fukushima	8.6	Cutting②, chrysanthemum, lily	Rhododendron brachycarpum
Ibaraki	14.6	cutting①, lawn①, chrysanthemum	Rose
Tochigi	6.9	chrysanthemum, tropical orchids (pot-grown), rose	Rhododendron pentaphyllum
Gunma	5.1	rose, chrysanthemum, cyclamens (pot-grown)	Japanese azalea
Saitama	18.5	Lily①, tropical orchids (pot-grown)②, flowering trees and shrubs (pot-grown)②	Primrose
Chiba	25.6	tropical orchids (pot-grown), Hinoki①, carnation	Rape blossom
Tokyo	5.4	cut leaves①, foliage plants (pot-grown), cyclamens (pot-grown)	Yoshino cherry
Kanagawa	5.2	tropical orchids (pot-grown), rose, pansy (flower seedlings) ②	Golden rayed lily
Niigata	9.3	Lily②, tulip①, tulip (bulbs)②	Tulip
Toyama	1.0	tulip (bulbs)①, chrysanthemum, tulip③	Tulip
Ishikawa	0.7	Stock, tropical orchids (pot-grown), cutting	Kamchatka lily
Fukui	0.7	Chrysanthemum	Narcissus
Yamanashi	3.6	tropical orchids (pot-grown), cyclamens (pot-grown), rose	Fuji cherry
Nagano	14.9	carnation①, chrysanthemum, eustoma	Gentian
Gifu	6.6	flowering trees and shrubs (pot-grown), foliage plants (pot-grown), tropical orchids (pot-grown)	Astragalus
Shizuoka	18	chrysanthemum, rose②, Gerbera①	Azalea
Aichi	62.6	chrysanthemum①, tropical orchids (pot-grown)①, flowering trees and shrubs (pot-grown)①	Japanese iris
Mie	7.4	Garden tree seedlings②, foliage plants②, tropical orchids (pot-grown)	Sword leaved iris

Prefecture	Output	Major flowers in production	Prefectural flower
Shiga	1.2	tropical orchids (pot-grown), chrysanthemum, rose	Rhododendron
Kyoto	1.2	cutting, chrysanthemum, tropical orchids (pot-grown)	Weeping cherry
Osaka	1.9	chrysanthemum, Garden tree seedlings, lily	Plum, primrose
Hyogo	4.8	carnation, chrysanthemum, garden tree seedlings	Chrysanthemum japonense
Nara	4.0	chrysanthemum, cutting, Garden tree seedlings	Double cherry blossoms of Nara
Wakayama	6.6	Statice②, chrysanthemum, baby's breath	Plum
Tottori	2.6	lawn②, stock③, tropical orchids	20th century pear
Shimane	1.6	chrysanthemum, cyclamens (pot-grown), rose	Japanese tree peony
Okayama	2.8	tropical orchids (pot-grown), rose, cutting	Peach
Hiroshima	2.4	chrysanthemum, tropical orchids (pot-grown), pansy (flower seedlings)	Maple
Yamaguchi	3.1	chrysanthemum, rose, tropical orchids (pot-grown)	Citrus natsudaidai
Tokushima	3.7	tropical orchids (pot-grown), tropical orchid①, lily	Citrus sudachi
Kagawa	3.3	chrysanthemum, flowering trees and shrubs (pot-grown), carnation	Olive
Ehime	3.5	rose, cutting, tropical orchids (pot-grown)	Satsuma orange
Kochi	7.1	Lily③, cutting, eustoma	Wax myrtle
Fukuoka	22.9	chrysanthemum③, garden tree seedlings①, tropical orchids (pot-grown)③	Plum
Saga	2.8	rose, chrysanthemum, lily	Camphor
Nagasaki	8.4	chrysanthemum, tropical orchids (pot-grown), carnation	Rhododendron serpyllifolium
Kumamoto	10.9	tropical orchids (pot-grown), Baby's breath①, eustoma②	Gentian
Oita	5.6	chrysanthemum, rose, sweet pea ②	Prunus mume var. Bungo
Miyazaki	7.4	tropical orchids (pot-grown), lily, sweet pea ①	Crinum
Kagoshima	14.1	chrysanthemum, lily, garden tree seedlings	Rhododendron kiusianum
Okinawa	10.8	chrysanthemum②, cut leaves③, tropical orchids (pot-grown)	Erythrina
Total	380.1		

Source: "Statistics on the Income from Agricultural Production" and "Investigation on the Production of Flowering Trees, etc." (Ministry of Agriculture, Forestry and Fisheries)

*Circled numbers in the "major flowers in production" column indicate national rankings. The top three ranks are indicated.