

**STRATEGY FOR PROTECTING IPRS RELATED  
TO INVENTION AND RESEARCH RESULTS IN  
AGRICULTURE IN JAPAN**

**FOCUSING ON PLANT VARIETY PROTECTION**

Masaharu Endo  
Hiraki & Associates

# Agriculture in Japan

- Disadvantages
  - Small farm lands located mainly in narrow and steep mountainous area,
  - Aging farmer communities, and
  - High cost for farming facilities and labors.
- Due to these disadvantages, Japanese farmers are not very competitive

# Agriculture in Japan

- In the past several years, Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) has implemented several policies that encourage Japanese farmers to **protect their intellectual property rights for strengthening their competitiveness in the commercial markets.**
- Among several measures for protecting intellectual property rights, **plant variety registration (PVR)** is an important building-block for development of agriculture.

# Agriculture in Japan

- MAFF has introduced new systems that are friendly for PVR applicants and right holders
  - accelerating examination process
  - helping them to establish infringement.
- This presentation will introduce:
  - New policy changes related to PVR
  - Several cases in which new plants are successfully protected by using PVR

# New Policies

- **MAFF Intellectual Property Strategy 2020 (IPS2020), May 2015**
  - Encouraging intellectual property protection and management in agriculture, forestry and fisheries sectors
- IPS2020 lists the following eight points which should be focused on in five years from 2015 to 2020
  - (I) Measurements for preventing technology leakage / Brand management strategy
  - (II) Development of overseas markets by using intellectual properties
  - (III) Strategic exploitation of international standards
  - (IV) Exploitation of traditional or regional brands
  - (V) Development on IC tags for using in the fields of agriculture, forestry and fisheries
  - (VI) Strengthening the competitiveness of seeds and seedlings industry**
  - (VII) Intellectual Property Management in Research and Development
  - (VIII) Education on Intellectual Property

# New Policies

In relation to “Enhancing protection of new plant varieties”, the IPS2020 lists the following four specific strategies:

- (1) International harmonization of examination procedures for PVR
- (2) Enhancement of counter measurements against infringement of plant breeder’s right**
  - (2)-(a) Supporting plant breeder’s right (PBR) holders to counter infringement activities**
  - (2)-(b) Developing plant variety identification technologies such as identification based on DNA analysis**
  - (2)-(c) Promoting PBR holders to use custom seizures against infringed plants imported from or exported to abroad
- (3) East Asia Plant Variety Protection Forum
- (4) Requesting foreign countries to establish reliable plant variety protection system

# PVR system in Japan

- PVR system based on **the Plant Variety Protection and Seed Act**, protects the rights of the breeder of a new plant variety and promotes the breeding of new varieties of plants.
- The right that can monopolize a new plant variety that the breeder is entitled to enjoy is called “**plant breeder’s right**” (PBR).
- The Act is conformed to the **1991 UPOV Convention** (the International Convention for the Protection of New Varieties of Plants) which provides an international rule for the protection of new varieties of plants.

# PVR system in Japan

Japan	The UPOV Conention
1947 Agricultural Seeds and Seedlings Law	1961 Adopted (entry into force 1968) 1972 Amendment
1978 Plant Variety Protection and Seed Act	1978 Amendment (entry into force 1981)
1982 Join UPOV 1978 Amendment	
1998 <b>Join UPOV 1991 Amendment</b> Full amendment on the Act	1991 Amendment (entry into force 1998)

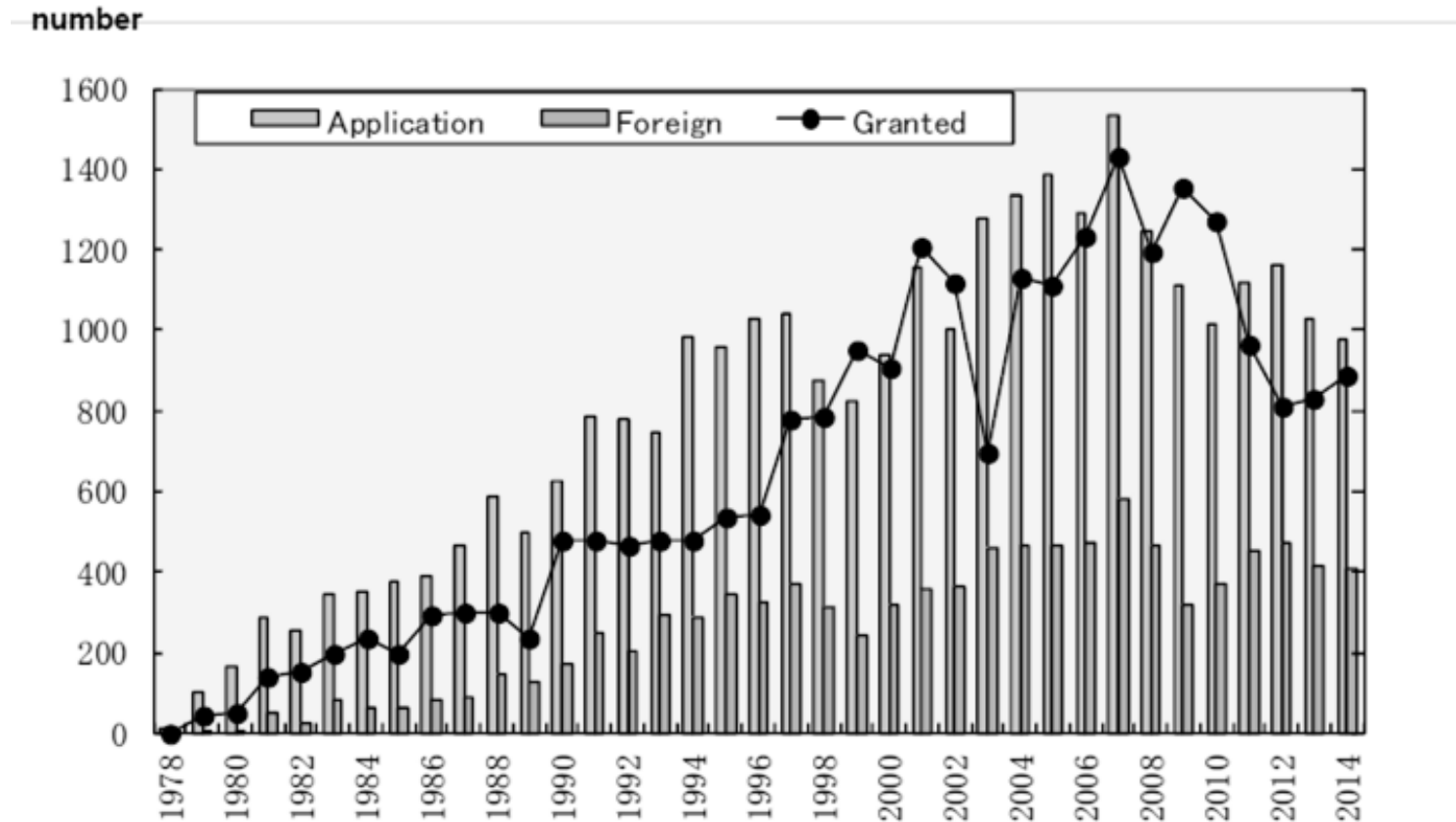
UPOV 1991 requires member states :  
to protect **all plant varieties**; and  
to grant exclusive rights in the same manner to both national breeders and to  
breeders who reside in or are nationals of other member states (**National treatment**)



# PVR system in Japan

- The number of application: around 1,000/year in the past several years,
  - 80%: Ornamental plants (such as flowers)
  - 7%: Fruit crops
  - 5%: Vegetables
- The 3rd biggest in world after Europe (2,736) and the United States (1,482) in 2006
- About 30 % of the total PVR applications in Japan are foreign-bred plants.

# Number of application and granted for plant variety protection in Japan



This graph is cited from Ministry of Agriculture, Forestry and Fisheries (Government of Japan), 2015, "Statistics and Introduction to Our Web-site (New)"

# PVR applications in Japan by foreigners

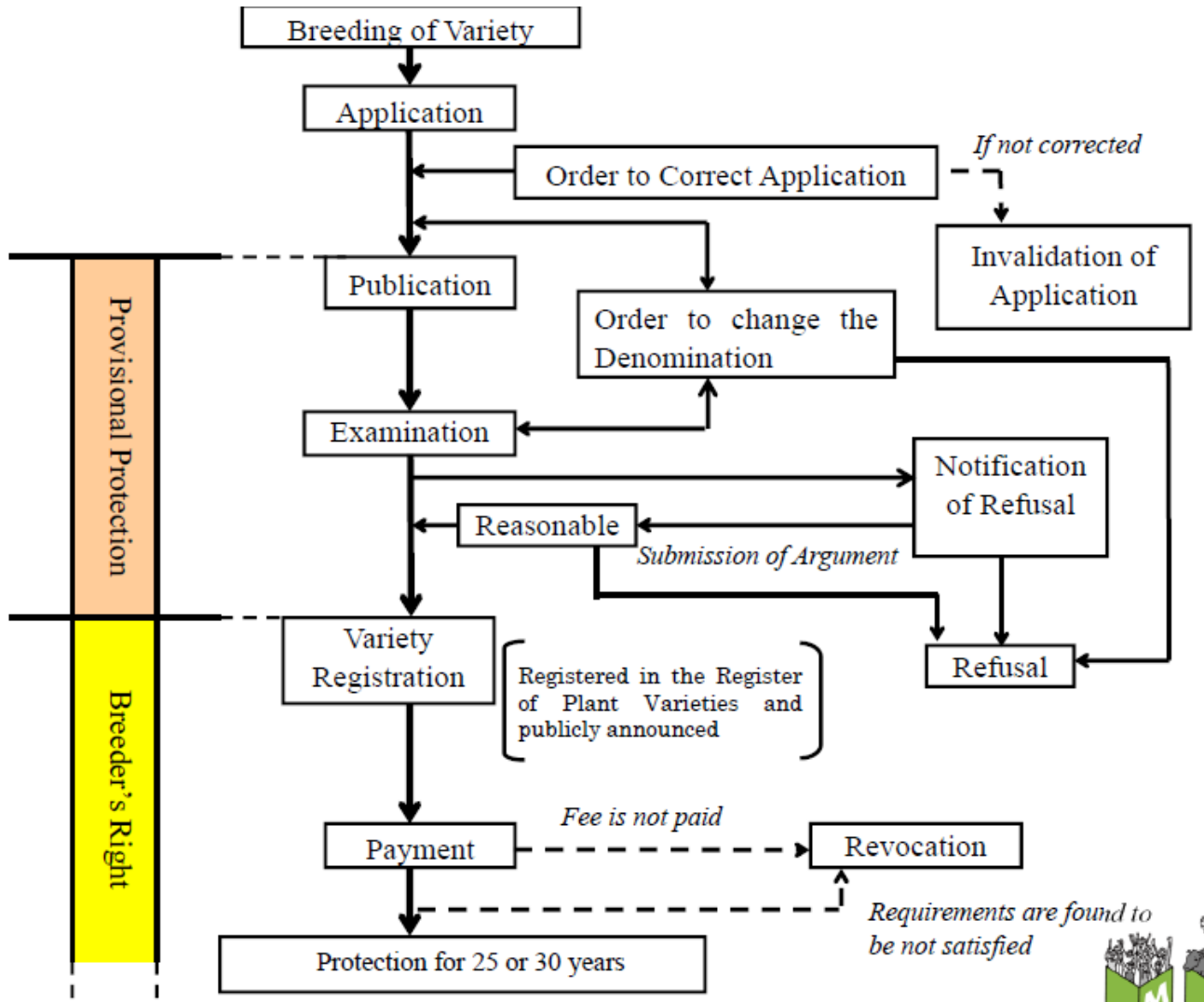
Total PVR applications in Japan	1,358
PVR applications by foreigners	440
Netherlands	141
Germany	77
United States	65
United Kingdom	25
Australia	10
China	7

In 2006

# Types of PBR holders in Japan (2016)

Seeds and Seedlings companies	53%
Individuals	27%
Prefectures in Japan	10%
National government of Japan	4%
JA (farmers' association)	1%
Other companies	5%

# Examination procedure



This drawing from MAFF website

# Requirements for gaining PBR

<b>Distinctness</b>	The applied variety must be clearly distinguishable in terms of important characteristics (shape, color, disease-resistance, etc) from any other varieties
<b>Uniformity</b>	All of the plants of the variety in the same propagation stage must be sufficiently similar in all of the characteristics
<b>Stability</b>	All of the characteristics must remain unchanged after repeated propagation
<b>Novelty</b>	The seeds and seedlings or harvested materials of the applied variety must not have been transferred, in Japan earlier than one year before the date of application, or in a foreign country earlier than four years from the date of such an application
<b>Suitability of name</b>	The name of the applied variety should be suitable

# Examination procedure

- PVR applications are examined by **IP Division of the Food Industry Affairs in MAFF**, not by the Patent Office in Ministry of Economy, Trade and Industry (METI) which examines patent and trademark applications.
- **DUS (distinctness, uniformity and stability)** examination is conducted in one of the following three forms;
  - 1) Growing Test,
  - 2) On-site Inspection by government officials,
  - 3) Documentary Examination (including international examination cooperation).
- **National Center for Seeds and Seedlings (NCSS)** undertakes the growing Tests.

# Examination procedure

- PVR system is based on **the principle of “actual thing”**, which means that what characteristics the applied plant has is examined.
- This is why the DUS examination is conducted. The plant variety is an actual thing, not an idea.
- This is a clear difference from the patent system, in which the examination is conducted on **the basis of the principle of “technical concept”** of an invention, and what are written in documents is examined.
- The DUS examination compares the applied plant variety with a standard, typical variety side-by-side.



# Enforcement of PBR

- The PBR holder has an exclusive right to exploit (produce, sell, offer to sell, import, export, etc.), in the course of business,
  - **the registered variety,**
  - **varieties that are not clearly distinguishable from the registered variety in terms of their characteristics,** and
  - varieties whose production requires the repeated use of the registered variety.
- Proving whether an allegedly infringing plant variety is “the registered variety” is required.
- How characteristics of a plant appear is dependent on the environment in which it is grown, and can vary from one environment to another
- The PBR holder has to conduct **a comparison test** in which the two plants are grown side by side in a same environment

# Enforcement of PBR

- Identification using DNA analysis is much more easy than growing test
- A DNA sequence in the gene that is unique to a plant having a specific characteristic is called “DNA maker”.
- However, identification using DNA makers is still under development. **Only limited DNA markers are accepted as a valid identification markers in civil court procedure**
- In a recent court decision by the Tokyo district court of a PBR infringement dispute, November 2014, the court did not accept a DNA analysis result submitted by the right holder as valid evidence for identifying the registered variety.

# Recent Developments

- **Acceleration of examination procedures**
  - The time from filing an application to be granted was **2.9 years in 2006**. For shortening the time, more examiners have been employed (22 in 2006 / 32 in 2012). The examination time has become shortened to **2.5 years in 2015**. MAFF sets **2.3 years** as the current target.
- **International examination cooperation**
  - For efficient examination, international examination cooperation, in which the MAFF can use the examination result by other countries on the same variety, is important. Japan has engaged cooperation agreements with UK, Germany, Netherlands, Israel, New Zealand, EU and Vietnam.
  - **But the range of plants subjected to such examination cooperation is very narrow**

# Recent Developments

- DNA analysis is effective, but not perfect yet.
- For fulfilling the need, the MAFF has been supporting industrial and academic sectors and national research institutes to develop DNA markers useful for plant variety identification since 2006
- As a result of these efforts, it was possible as of 2013 to identify more than 50 varieties of rice, more than 125 varieties of strawberry, more than 85 varieties of cherry and a lot of other plant varieties by DNA analysis
- These plant variety identification tests are available for anybody who requests the NCSS

# Counter measurements against infringement

- Plants can self-propagate, and, therefore, are **highly prone to infringement**
- Plants are living and always changing. It is also difficult to preserve samples of the allegedly infringing products in advance to future legal actions.
- Due to these difficulties, PBR holders have often given up enforcing their PBRs, and therefore the number of PBR infringement lawsuits is very small.
- According to a survey in 2006, 33.6% of PBR holders (180 / 536) had an experience that their PBR was infringed, but 32% of them had done nothing against it

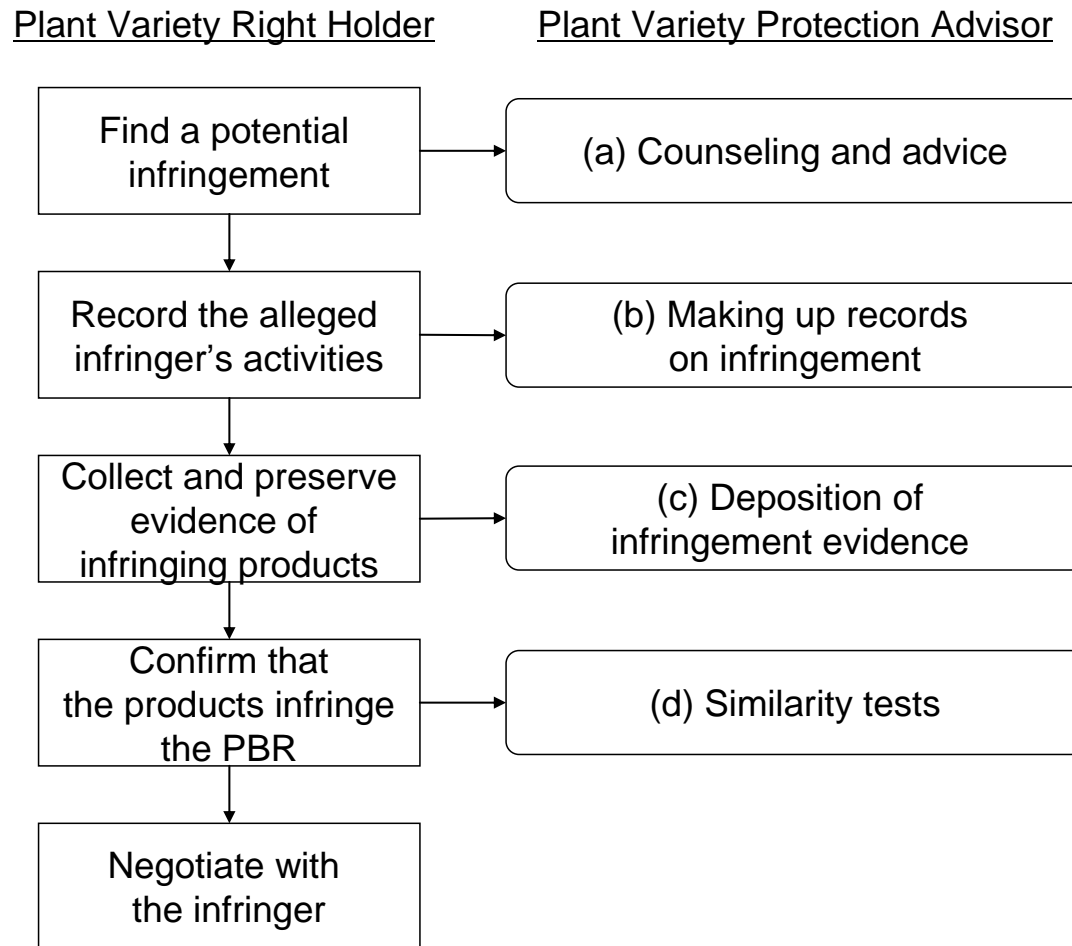
# Counter measurements against infringement

- MAFF has started several programs supporting PBR holders to help them to enforce their rights with less difficulty
- Such programs includes:
  - “Plant variety protection advisors” supporting PBR holders in the National Center for Seeds and Seedlings (NCSS)
  - Support for developing plant variety identification technologies using DNA analysis

# Plant variety protection advisors of NCSS

- NCSS is a division of MAFF, mainly conducting the DUS examination
- The same division has been assigned plant variety protection advisors (PVP advisors) in 2005 to provide a **consultation service** for those who have concerns that their PBR may have been infringed.
- The activities of the PVP advisors are very unique and probably have no counterpart outside Japan.

# Plant variety protection advisors of NCSS





# Plant variety protection advisors of NCSS

## (a) Counseling and advice

- PVP advisors offer counseling service on infringement of the PBRs such as “someone is propagating a registered variety and selling it.” The advisors give advices about what countermeasures are available.

## (b) Making up records on infringement

- The advisors go to the scene with the clients (at home and overseas) to examine the cultivation, storage, and sales of the seeds, seedlings, and other product suspected of infringement, and to create the records.
- These records can be used as evidence to prove the date, quantity, and money amount for the purpose of establishing PBR infringement.

# Plant variety protection advisors of NCSS

## (c) Deposition of infringement evidence

- The advisors store evidence infringing PBRs, such as seeds, seedlings, leaves, DNA and other goods on behalf of the PBR holders, helping them to preserve evidential capacity.
- When the deposited good is cut flowers, the advisors regenerate the plants with cutting propagation (production of young plants) and keep them

## (d) Similarity tests

- Upon the request of the PBR holders, the advisors conduct similarity tests, which compare the suspicious varieties of the infringement with registered varieties.

# Successful case with NCSS advisors: Carnation

- On “mother’s day” in May, Japanese people have a custom of sending flowers of carnation to their mother. At the beginning of May every year, flowers of carnation are imported mainly from China and Colombia.
- In this case, PBRs belonged to a group of Japanese and European companies.
- The group authorized several Chinese farmers to cultivate the carnation varieties in China and export them to Japan.
- The group requested the Chinese farmers to put a special label, called “Export Approval Certificate (EAC)” on each package of the exported carnation. If a package of carnation did not have the EAC label on it, it was clear that the package was an infringing product.

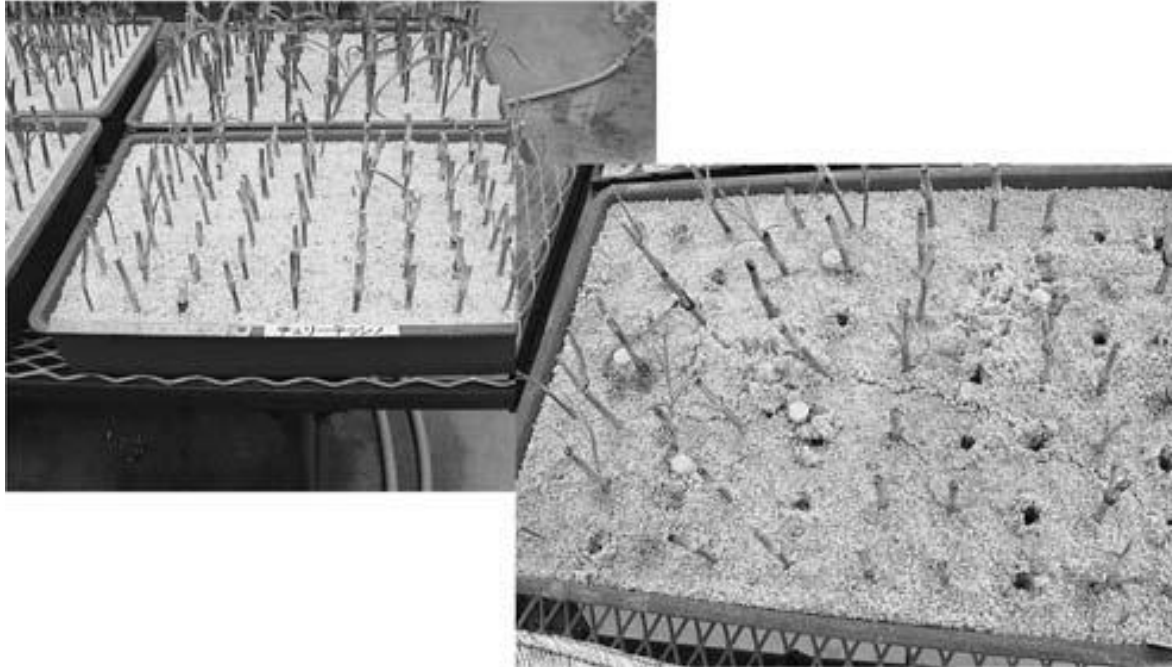


Photos are cited from MAFF website

# Successful case with NCSS advisors: Carnation

- In May 2008, at a market in Tokyo, the PBR holder companies together with NCSS advisors carried out an inspection on cut flowers of carnation imported from China to check whether they were with the EAC label, and found several packages without the label. They seized the packages of carnation.
- For confirming whether the cut flowers were infringing their PBRs, the companies asked the NCSS advisors to conduct a comparison test.
- The NCSS advisors regenerated the carnations with cutting propagation, and using the regenerated carnations, conducted a comparison test.
- The PBR holder companies had negotiations with the importer, requested to stop importing the flowers, and finally the importer agreed.

# Successful case with NCSS advisors: Carnation



These photos are cited from the MAFF website

# Combination of PVR and Trademark Registration

- PBR protection term is 25 or 30 years and, once it expires, anybody can produce and sell the same plant variety. After PBR expiration, controlling the quality of the plant variety has become difficult, and, the brand value of the variety can be deteriorated quickly.
- For avoiding such embarrassing situation, **MAFF strongly recommends that the name of the registered plant variety should be protected by trademark registration.** Trademark registration can be kept in force indefinitely upon payment of renewal fees every 10 years.
- The plant breeder can give a license of putting labels showing the trademark on the registered plant variety only to limited farmers in order to maintain high quality and to protect the brand value.
- MAFF has introduced several successful cases in which plant breeders made a commercial success by using plant variety protection and trademark registration in combination.

# Case 1: Kiwi fruit

- "*Zespri Gold*" is a new variety of kiwi fruit, bred by a New Zealand company, Zespri Group Limited (ZGL). ZGL has a PBR on *Zespri Gold*, as a variety name "Hort16A", registered in 2005 in Japan.
- ZGL also has several trademark registrations on "*Zespri*" or "*Zespri Gold*". Since in Japan and in New Zealand seasons are opposite, the fruit can be supplied all year round from either Japan or New Zealand.



The pictures are cited from the website of Zespri Group Limited  
<http://www.zespri-jp.com/>

# Case 1: Kiwi fruit

- In 2001-2004, ZGL gave a license of producing the variety to around 440 farmers in Ehime Prefecture and around 160 farmers in Saga Prefecture, western Japan.
- ZGL requested the farmers to put a label showing the trademark "*Zespri Gold*" on each piece of the kiwi fruit produced under the license.
- In order to let people know the brand "*Zespri Gold*", ZGL conducted a lot of sales promotion activities on TV and other places.
- As a result, not only ZGL but also the farmers in Ehime and Saga have made a commercial success. On sales base, around 20% of kiwi fruit was *Zespri Gold*, in Ehime Prefecture, in 2008. Unit price of *Zespri Gold* is 5 USD/Kg, much higher than 3.5 USD/Kg of kiwi fruit average
- "*Zespri Gold*" has established a high brand value in the kiwi fruit market in Japan.



# Case 1: Kiwi fruit

	2005	2008
<i>Zespri</i> Gold in Ehime	Production: 258 tons Sales: more than 1.4 M USD	Production: <b>1,300 tons</b> Sales: <b>more than 6.8M USD</b> Share in Ehime: <b>20% (sales)</b> Unit price: <b>5 USD/Kg</b>
Kiwi Fruit in Total in Ehime	Production: 8,300 tons Sales: more than 28 M USD	Production: 9,600 tons Sales: more than 34M USD Unit price: 3.5 USD/Kg

The data are cited from Endo, J., 2011,  
 "Enhancing the Effectiveness of the PVP System in the Next 10 Years"  
 Symposium on Plant Variety Protection, 13-15 July, 2011, Seoul Korea

# Case 2: Strawberry

- Most prefectures in Japan have their own agriculture research centers, which are researching breeding useful plant varieties and livestock animals suitable to the environmental conditions of the prefecture.
- "*AMAOU*" is a new variety of strawberry, bred by such research center of Fukuoka Prefecture.
- "*AMAOU*" is characteristic in that it is much bigger and sweeter than the other strawberry varieties.
- Fukuoka Prefecture filed an application for a plant variety protection over *AMAOU* in 2001 and obtained a PBR in 2005. The prefecture also holds a PBR in China, Korea too. The purpose of holding the PBR in foreign countries is mainly to prevent illegal production.



This photo is cited from the website of FIRM STATION FUKUOKA

# Case 2: Strawberry

- Fukuoka Prefecture gave a license to JA, the largest farmers association in Japan, of producing "*AMAOU*" on condition that JA sells the seedlings of the variety only to farmers in Fukuoka Prefecture. Only farmers in the prefecture can produce and sell *AMAOU*.
- Fukuoka Prefecture has also developed a variety identification method of *AMAOU* using **DNA analysis**, by which it is easily detected whether a strawberry is *AMAOU* or not.
- JA obtained a **trademark registrations** of *AMAOU*, in Japan, Hong Kong, China, Korea and Taiwan.
- The prefecture and JA conducted a lot of commercial promotion activities in Japan and the Asian countries/regions.

# Case 2: Strawberry

- *AMAOU* has made a big commercial success.
- In 2014, its sales amounted to 144 million USD (2<sup>nd</sup> among all strawberry varieties in Japan), and its unit price reached to about 13.5 USD/Kg (1<sup>st</sup> for 11 years).
- The price at shops in Tokyo in 2014 was about **8 USD per package (300g)**, and about **36 USD per package** in Thailand.
- *AMAOU* has succeeded in establishing a position as a **luxury fruit** in Asian regions.

# Plant Variety Protection in Foreign Countries by Japanese Breeders

- PVR applications for foreign-bred varieties occupy a large proportion of the total applications in Japan, around 40%.
- On the other hand, the number of outbound PVR applications going to foreign countries by Japanese applicants is not very big. In 2006, there were 230 outbound PVR applications.
- Most research institutes of national and local governments in Japan are now struggling financially. They are unwilling to file PVR applications in foreign countries

Foreign PVR applications by Japanese	230
United States	63
EU	58
Canada	33
Korea	31
Australia	5
China	3

(2006)

# Plant Variety Protection in Foreign Countries by Japanese Breeders

- But, in Japan, most of economically important plant varieties have been produced by these governmental research institutes.
- The government sees that the current situation needs to be changed.
- MAFF is now considering starting a new program to encourage Japanese breeders to file PVR applications in foreign countries on condition that the applications are directed to important varieties bred in Japan
- MAFF is requesting budget for the program, **3 million USD.**
- MAFF has set a target of increasing the export of agriculture products from 7.4 billion USD in 2015 to **10 billion USD in 2019**

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