

Plant breeding and PVP for variety adaptation to the Japanese climate

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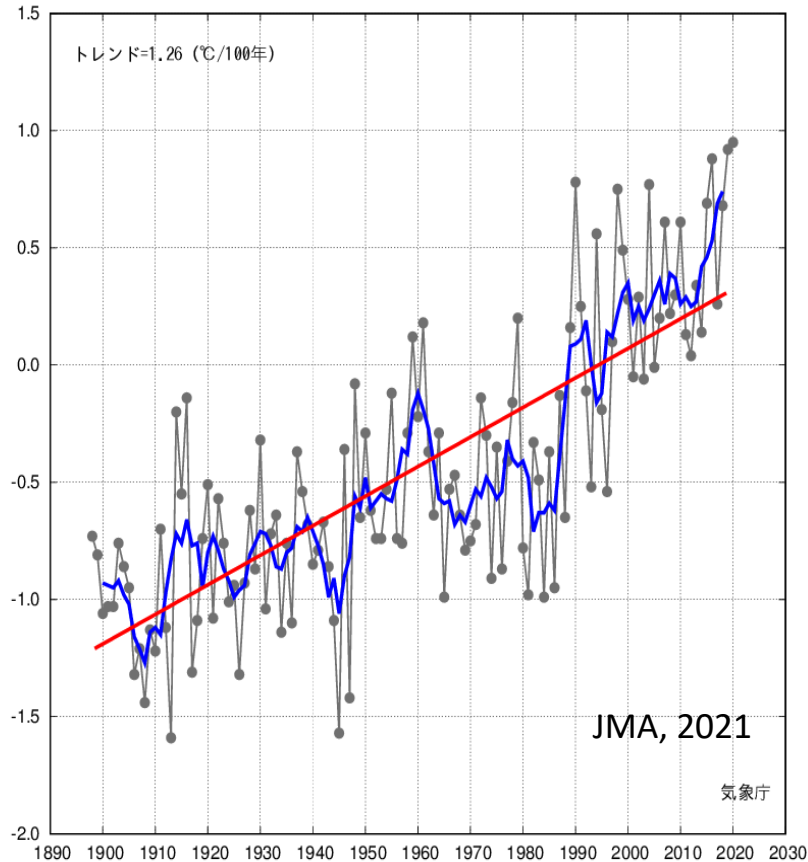
**Plant Variety Protection Office, Intellectual Property Division
Export and International Affairs Bureau
MAFF of Japan**



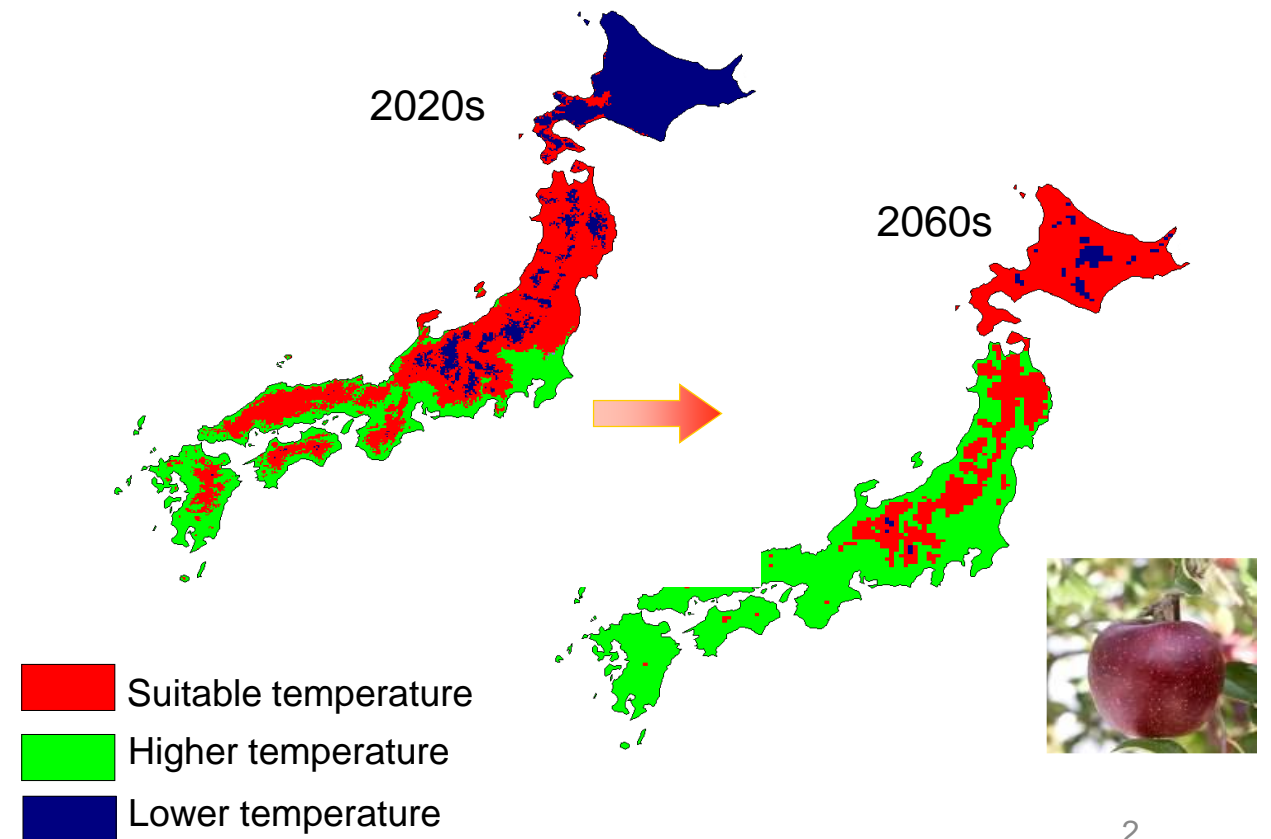
Climate Change in Japan

- Average temperature has risen by 1.26 degrees Celsius per 100 years in Japan.
- Agricultural production regions are expected to change with emerging high-temperature injury.

Average temperature trends in Japan over the past 130 years, relative to 1981-2010

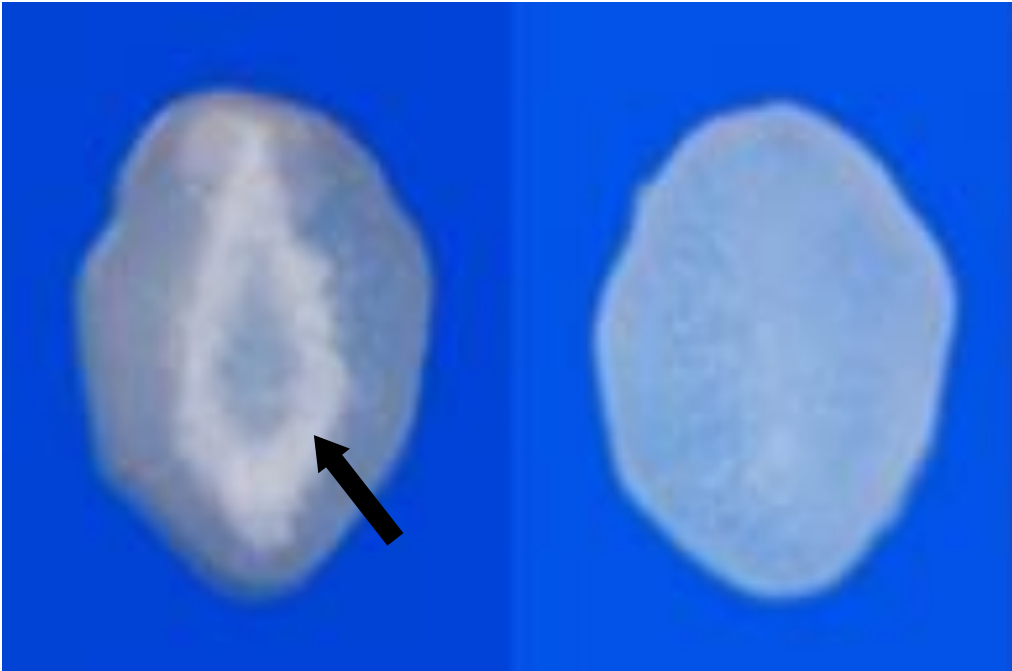


Suitable regions for apples are expected to change



Impacts of Climate Change on agricultural products

Rice



Immature starch formation in grain due to high temperatures.

Apple



Poor or delayed coloring of fruit due to high temperature

Deterioration of fruit quality reported in other fruits (grapes, peaches, etc.)

New plant varieties are key to adapt to Climate Changes

Rice

High temperature tolerant variety with few immature grains



NIJINOKIRAMEKI
(protected new variety)

KOSHIHIKARI
(existing variety)

Grapes

New varieties with good coloration even at high temperatures



Grosz Krone
(PVP applied)

Apples

New varieties with good coloration even at high temperatures



BENIMINORI



KINSHU



TSUGARU

New varieties with good coloration

(existing variety)

Impatiens

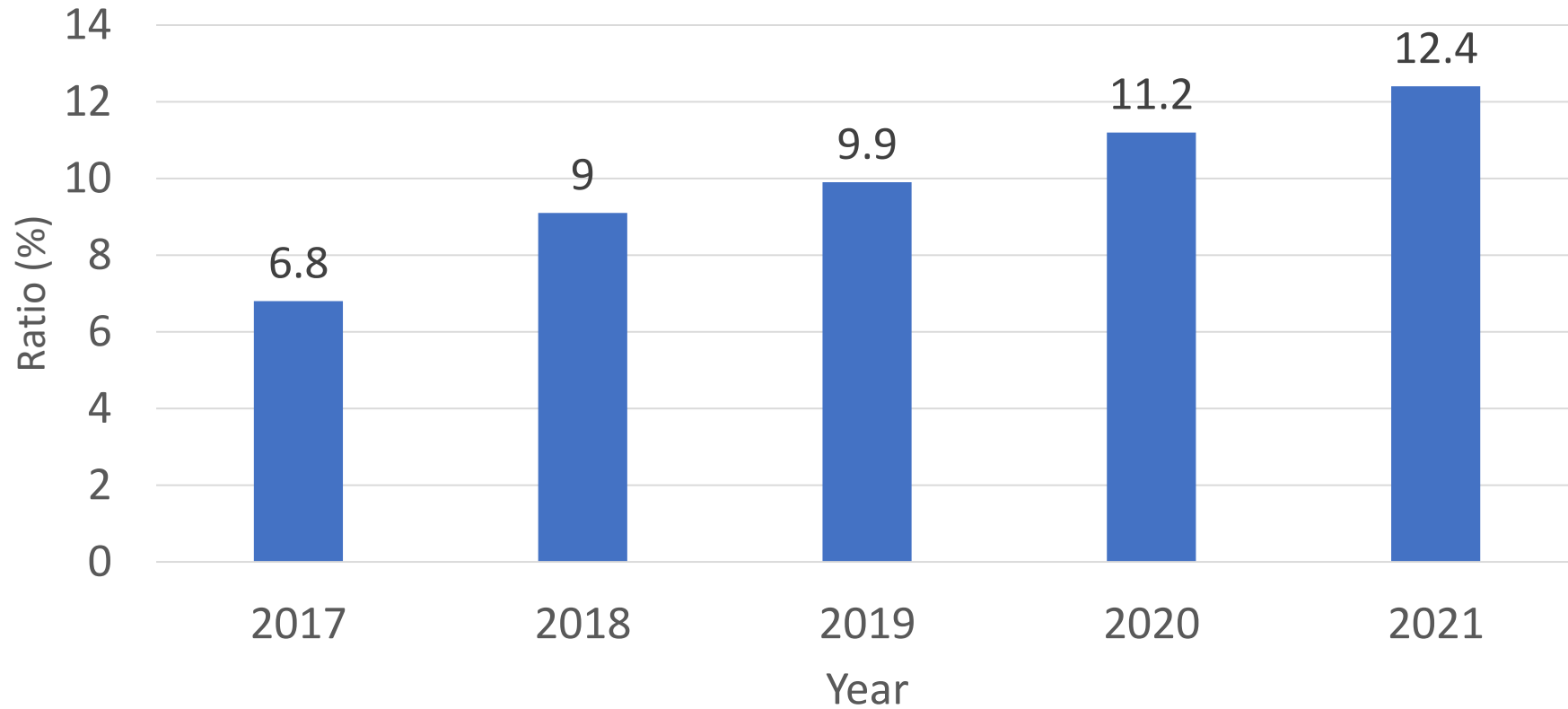
• Growing well in wide range conditions, even at high temperature



SunPatians

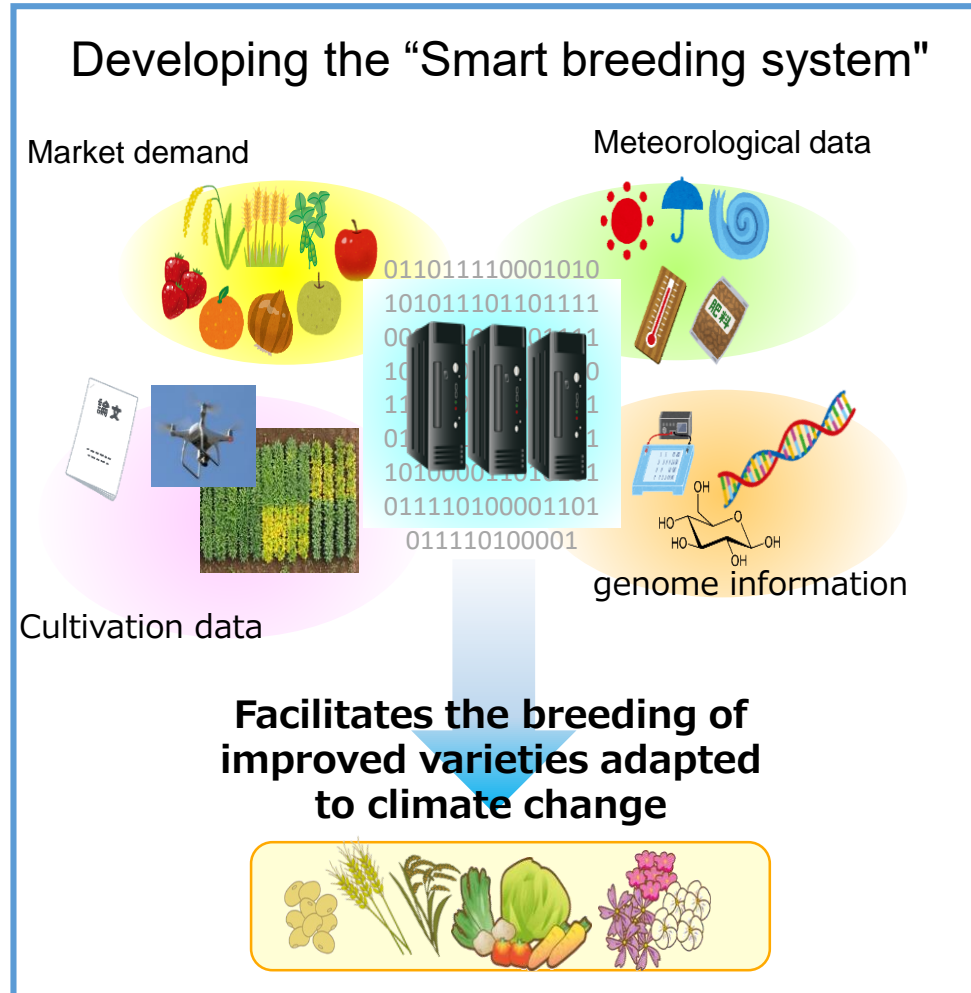
Growing needs for new varieties to adapt climate change

Percentage of planted area of High-Temperature Tolerant New Varieties of Rice



Innovation to facilitate breeding of new varieties to adapt to Climate Change

“Smart breeding system” in combination with AI and new breeding technologies will enable more efficient and faster breeding by big data on phenotype-genotype information.



Genome Editing Technologies

- Pre-harvest sprouting tolerant wheat variety



It was bred by Okayama university and National Agriculture and food Research Organization.

Case Unintended outflow of plant varieties developed in Japan

Shine Muscat



- Bred in Japan
- Registered in 2006
- Period of breeding is 33 years !!
- It has a strong sweetness, excellent taste, and can be eaten with the skin, so it is traded with high price.
- It is high expected as a main product of export.

**Japan
Brand!!!**

As the background of this case, two factors are identified:

1. Because domestic seed/seedling market was large enough to sustain breeding activities, Japanese breeders haven't tended to acquire PBRs for their new varieties outside Japan.
→ Duration of Novelty was already over, and breeders could not apply for their variety to overseas
2. Under the Japan's PVP Act before its amendment, once a protected seedling is released to the market, PBR of that seedling is exhausted on export.

Consequently,,,,

30 times more area under cultivation abroad (53,000 ha) than in Japan (1,840 ha)

Production, Trade, or Marketing of "Shine Muscat" has been widely spread in Asia, and which is not the intention/strategy of the breeder of "Shine Muscat" .

→ This situation caused not only a loss of Japan's export market, but also damage of Japan's Brand

Strategy of Plant Variety Protection - IP Strategies 2025

- Unintended outflow of new plant varieties to the foreign countries
- Lack of awareness of importance of PVP



Amendment of the PVP Act in JP

- Designation of export destination country by right holders when filing application
- Any acts in respect of the propagating material of protected varieties shall require the authorization of right holders (except with “Compulsory exemption”)

Encourage breeders to apply foreign countries

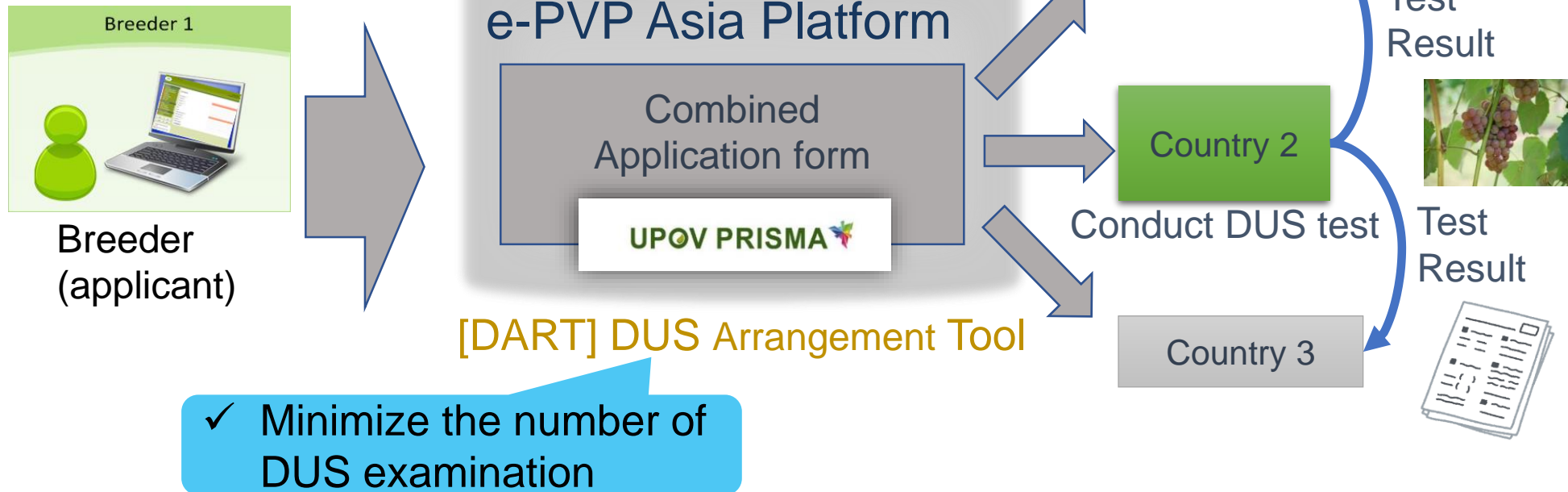
- Government provides support and raising awareness of the protection of new plant varieties in foreign countries to enforce the breeders’ right (Injunction, compensation claims)

Enhancement of cooperation with PVP Office in foreign countries

- Efficient application in Asian countries
- Enhanced DUS cooperation to minimize the number of DUS examination in participating countries

“e-PVP Asia”

- ✓ Combined Application Form
- ✓ Single Online application



- Current participating countries: JP, VN
Provisional participating countries: BN, MM, MY
Observers: other EAPVP Forum members
- Resource partner: UPOV Office
- To be launched in early 2023.

Cooperation with the Asian partners



11th East Asia Plant Variety Protection Forum



JICA Training Course

Thank you for your attention!