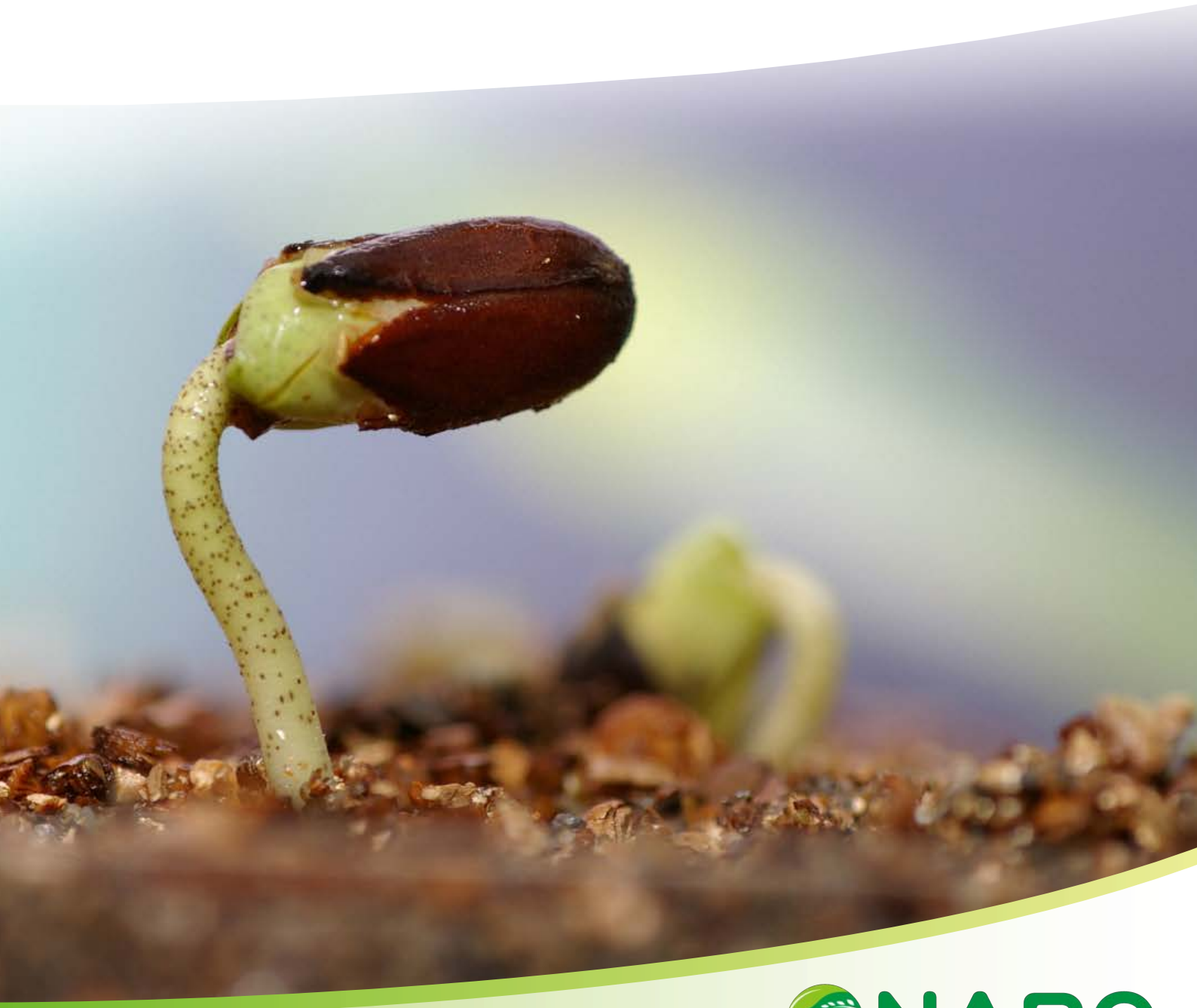
NCSS

Center for Seeds and Seedlings,
National Agriculture and Food Research Organization

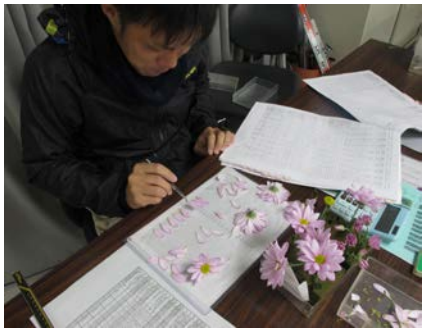


NARO
National Agriculture and Food Research Organization

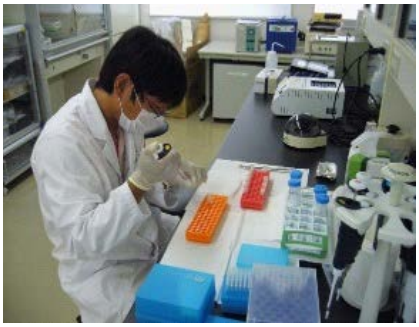
The mission and vision of NCSS

Seeds and seedlings are fundamental to our lives.

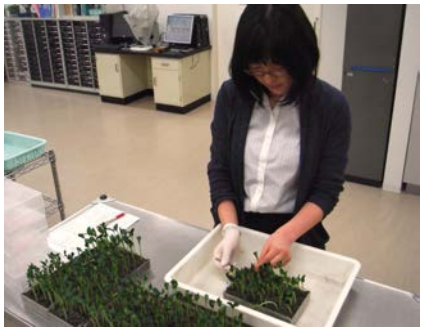
Seeds and seedlings are essential materials for agricultural production. New varieties are also valuable assets for the development of the agriculture of all countries.
The Center for Seeds and Seedlings, NARO (NCSS) has its headquarters in Tsukuba, Ibaraki Prefecture, with 11 stations nationwide from Hokkaido to Okinawa. Our missions include DUS (Distinctness, Uniformity and Stability) growing tests for new plant varieties and support for the protection of Plant Breeder's Right (PBR), inspection of the quality of seeds on Japan's market, and distribution of foundation seeds of potato and sugarcane. In addition, as a sub-bank of the “Genebank Project", we are responsible for conserving vegetative propagation plants such as potato, fruit trees, and so on. We collaborate with the NARO laboratories to spread new varieties that are bred by them.
Japan's Plant Variety Protection and Seed Act was amended in December 2020 due to an overseas outflow of Japan's superior varieties whose PBRs were infringed in recent years. To make it easier to utilize breeder's right, measures have been established to prevent overseas outflow without the consent of the right holder.
For those reasons, various registrations conducted by us have become increasingly important, and we will contribute further to securing a stable supply of food and enhancing Japan's agricultural competitiveness.



Characteristic assessment
(DUS growing test)



DNA analysis
(Protection of PBR)



Germination test

Production of foundation seeds
(potato tubers)

Production of foundation seeds
(sugarcane seedlings)

Various varieties of sweet potato
(genetic resources)

Organization Chart

2022.4.1

President　Auditor
Senior Vice President・Vice President
NARO Headquarters

Core Technology Research Headquarters

- RCAIT/NARO
- RCAR/NARO
- NGRC
- NAAC

Segment Ⅰ

- NFRI
- NILGS
- NIAH

Segment Ⅱ

- HARC/NARO
- TARC/NARO
- CARC/NARO
- WARC/NARO
- KARC/NARO
- IAM/NARO

Segment Ⅲ

- NICS
- NIFTS
- NIVFS
- NIAS

Segment Ⅳ

- NIAES
- NIRE
- NIPP

NCSS

BRAIN

Director-General

- **Deputy Director-General**
- **Strategy Office**
- **Department of DUS Test and Seed Inspection**
  - DUS Test Management Section
  - DUS Testing Section
  - Plant Variety Protection Section
  - Seed Inspection Section
- **Department of Seed Production and Collaboration with Research**
  - Seed Production Section
  - Collaboration Promotion Section
- **Hokkaido-Chuo Station**
  - Shiribeshi Sub-Station
- **Iburi Station**
- **Tokachi Station**
- **Kamikita Station**
- **Tsumagoi Station**
- **Yatsugatake Station**
- **Nishinihon Station**
- **Unzen Station**
- **Kagoshima Station**
- **Okinawa Station**

History

1947: Ministry of Agriculture and Forestry established 7 Potato Foundation Seed Stations

1949: Ministry of Agriculture and Forestry established the Seedlings Test Office

1986: NCSS was established within the Ministry of Agriculture, Forestry and Fisheries (MAFF) by integration of the following:
- 13 foundation seed stations (potato, sugarcane, tea)
- 3 branch offices of the Plant Variety Protection and Seed Division

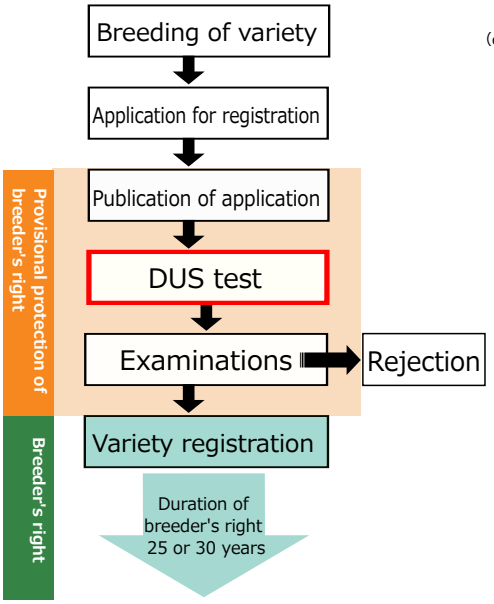
2001: NCSS was separated from MAFF and reorganized into an Incorporated Administrative Agency

2016: NCSS was integrated with NARO, National Institute of Agrobiological Sciences and National Institute for Agro-Environmental Sciences

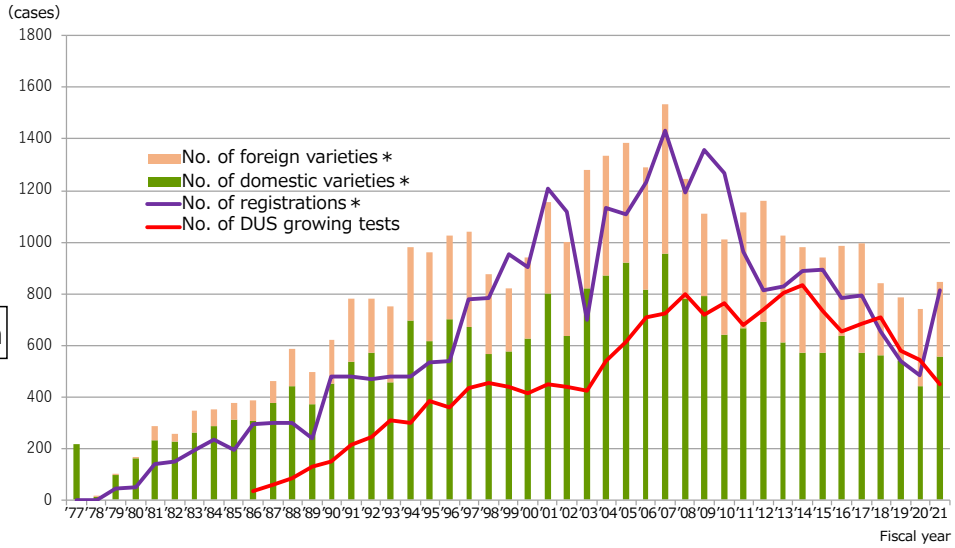
DUS Growing Test

The Plant Variety Protection and Seed Act provides the plant variety registration system for protection of plant breeder's right to promote breeding new varieties.
NCSS conducts the DUS (Distinctness, Uniformity, and Stability) growing test to provide data for analysis to clarify whether candidate varieties are new ones or not. In the DUS growing test, candidate varieties are cultivated in fields or greenhouses and compared with similar varieties (reference varieties) and are assessed regarding morphological characteristics (size, color, shape, etc.) and physiological characteristics (resistance to diseases, etc.). Until now, NCSS has mainly conducted the DUS growing test on ornamental plants and vegetables, but with the amendment of the Plant Variety Protection and Seed Act in December 2020, NCSS also promotes system development for conducting the DUS growing test on fruit trees.

Outline of plant variety registration



Trends of the number of applications for plant variety registration



*Reference: Variety registration (Ministry of Agriculture, Forestry and Fisheries)

DUS Test

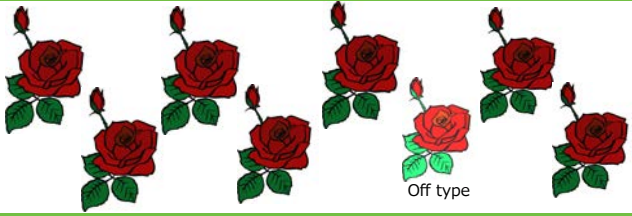
Distinctness (D)

Candidate varieties must be clearly distinguishable from other varieties.

Candidate variety　　Similar variety

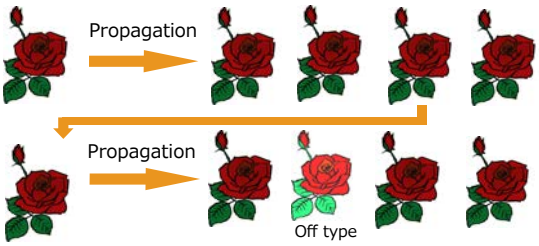
Uniformity (U)

Individual plants of the candidate variety must be sufficiently uniform at the same propagation stage.*



Stability (S)

Characteristics of the new variety must be stable through repeated propagations.*



*If the number of off types is less than the maximum allowed, the variety is accepted as uniform.

Plant Variety Protection

In order to support the PBR (Plant Breeder's Right) holder, NCSS assigns PVP (Plant Variety Protection) practitioners nationwide at seven stations, and provides useful services, such as consultation and information collection/provision on infringement of PBR for protected varieties, making the infringement records as evidence, deposit of evidence such as seeds and propagating materials, and similarity testing for confirming the fact of infringement. The Plant Variety Protection and Seed Act, which was amended in December 2020, established a system under which the national government determines whether a variety is covered by the PBR or not. NCSS also conducts surveys based on this new system.

If your PBR is infringed...

PBR holder

Gather the infringement information

Counseling*

Firstly — Record the infringement as evidence

Request for making the infringement records

Secondly — Store the evidence (infringing goods)

Request for deposit

Thirdly — Verify the fact of infringement

Request for similarity tests

Finally — Negotiate with the infringer

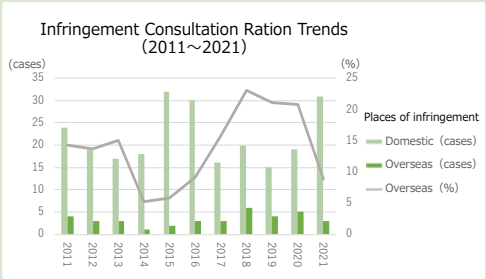
Consult a lawyer as required

License agreement | Amicable settlement | Lawsuit | Customs import suspension

*Counseling from those suspected of infringement is also available.

PVP practitioners

Advice on countermeasures



Making the infringement records

We visit the site with the client and make a record to investigate the infringement situation.

Deposition of evidence

If the deposit is a cut flower, we regenerate the mother plant (production of seedlings).

Similarity tests

When a client submits a variety similarity test request form to confirm the fact of infringement, we conduct variety similarity tests (comparative cultivation, characteristic comparison, DNA analysis).



INFORMATION
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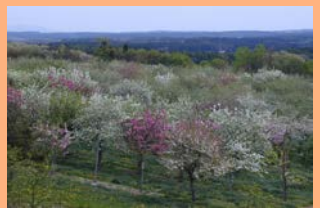
Conservation of Genetic Resources

As a sub-bank of the “Genebank Project” operated by NARO, aimed at conserving and propagating seeds and plants that are materials for breeding new plant varieties, NCSS (6 stations) cultivates plants such as potato and fruit trees, etc., that cannot be conserved by seeds (vegetatively propagated plants) and conserves them while investigating their characteristics.

Conservation of vegetatively propagated plants


Potato (Tsumagoi Station)

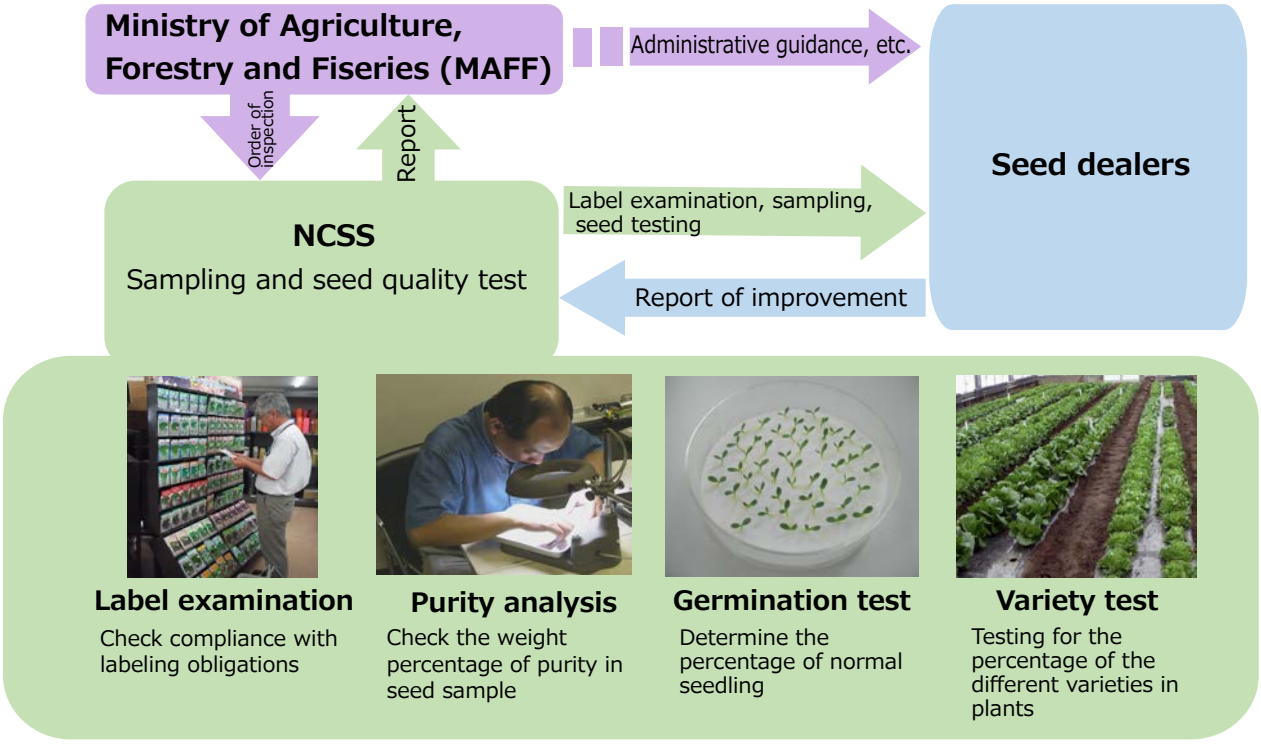

Apple tree (Kamikita Station)

Characteristics investigation

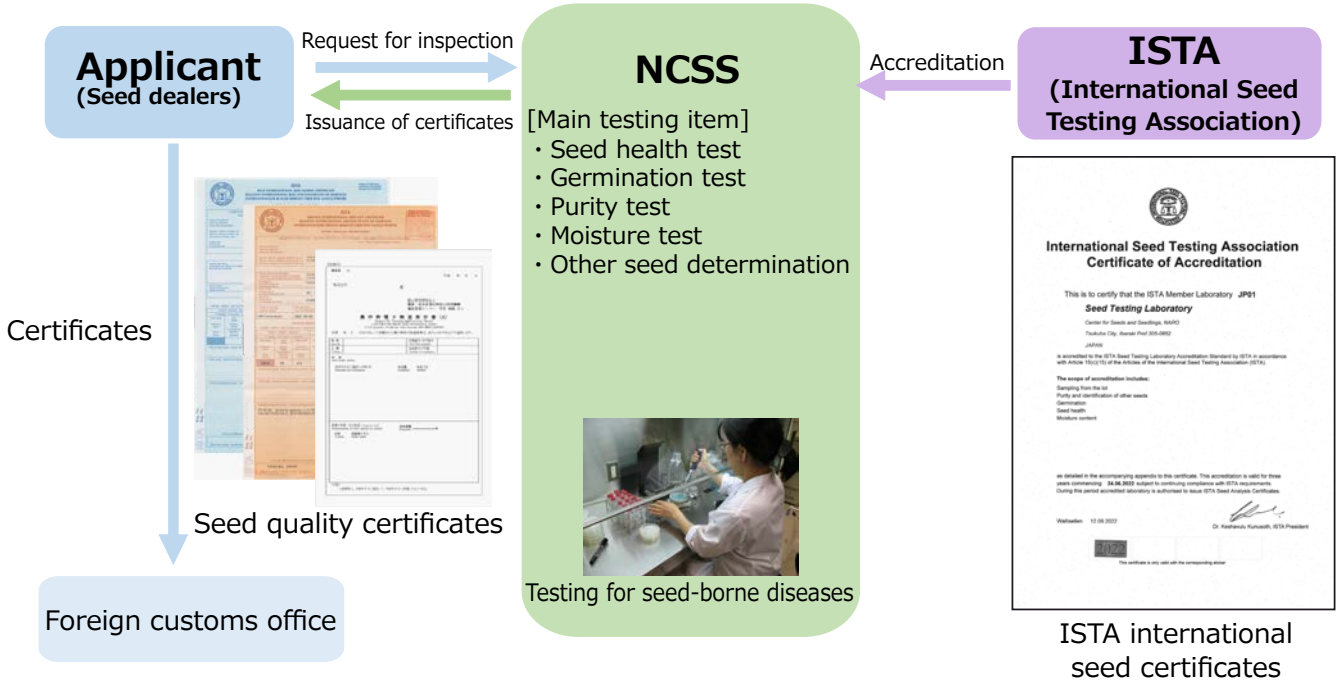

Tuber skin and flesh color test

Seed Inspection

In order to appropriately label and ensure the quality of seeds in the market, the Plant Variety Protection and Seed Act designates important agricultural crops and obligates labeling of the variety name, germination rate (in the case of seeds), and other information in the packages for sale. In addition, the Act sets forth the criteria to be met for the production of designated seeds. NCSS implements seed inspection according to the Act. Furthermore, NCSS issues the seed quality certificates under the rules of International Seed Testing Association (ISTA) upon request by seed dealers, which is called "Seed testing service". Moreover, through the validation of new testing methods, NCSS works on expanding the testing and contribute to the improving quality of seeds distributed in Japan and overseas.



Seed testing service

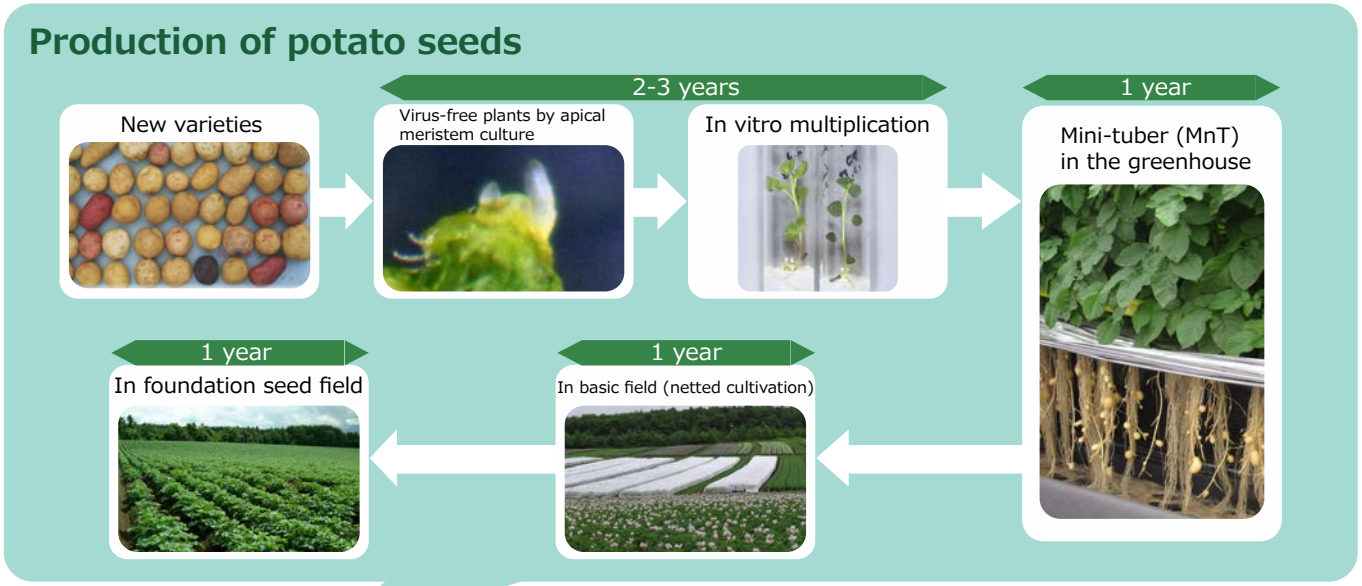


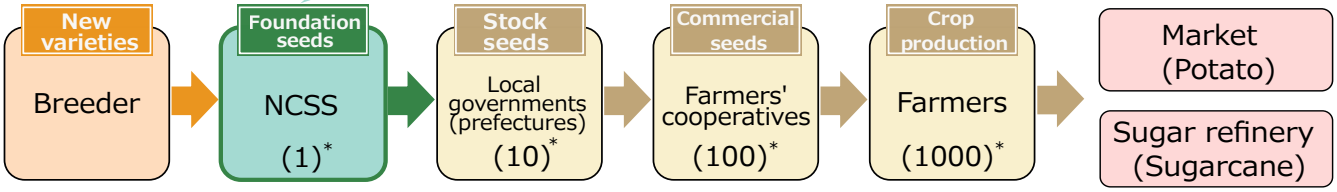
Production and Distribution of Foundation Seeds

Potato and sugarcane, which are the important crops in Japan, are highly vulnerable to infection with viruses, bacteria, etc. Significant damage and decrease in production occur when infected seeds are distributed. NCSS produces and distributes disease-free and high-quality foundation seeds of potato and sugarcane on geographically isolated fields while conducting strict inspections under the Plant Protection Act.

Flow of production of foundation seeds

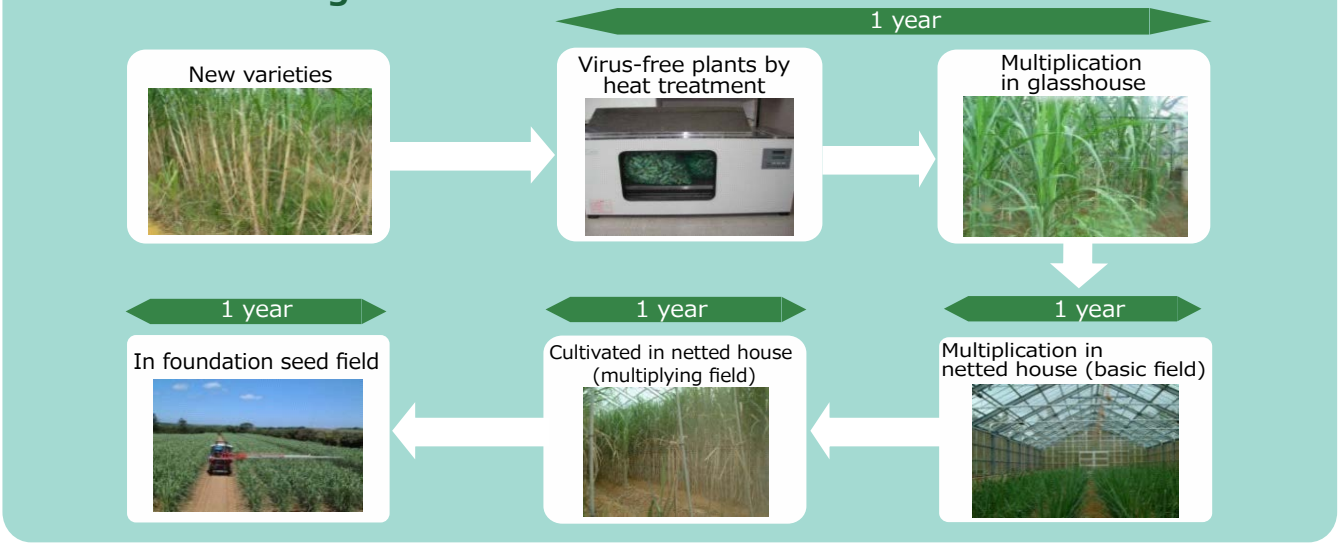
Production of potato seeds



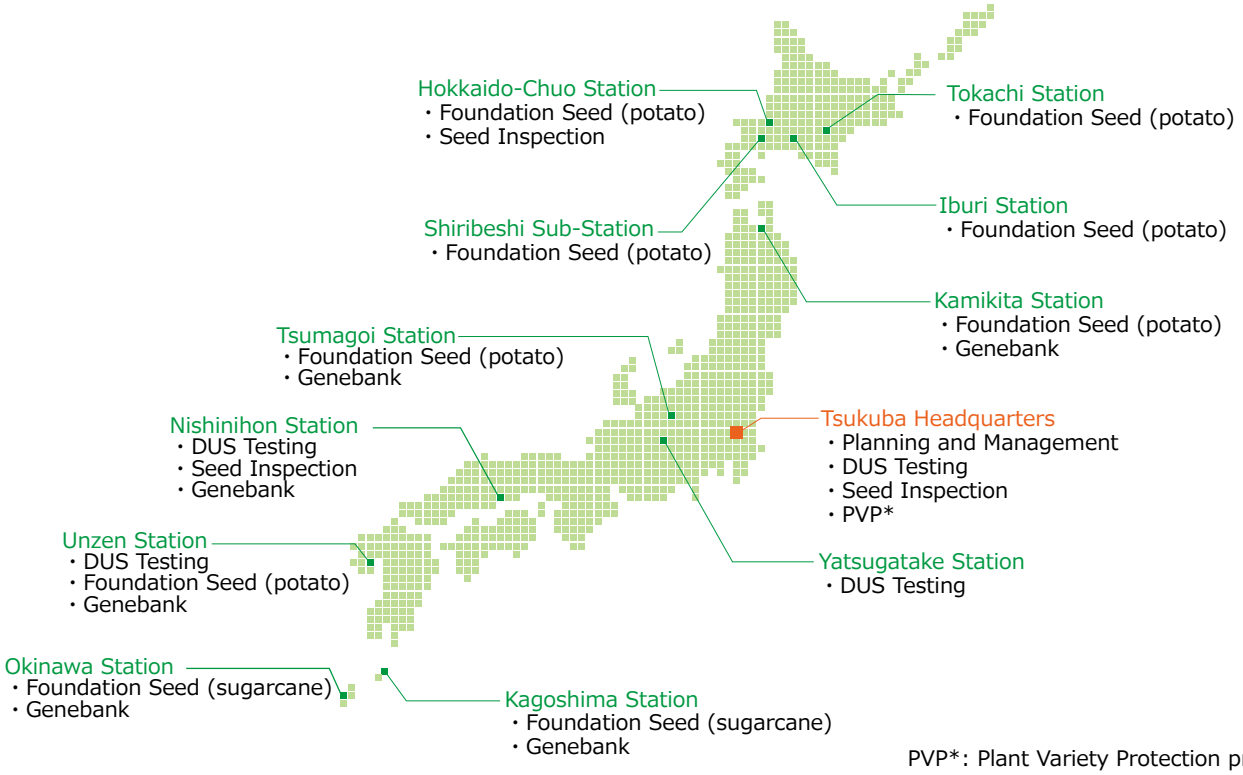


()* indicates multiplication ratio

Production of sugarcane seeds



Location



PVP*: Plant Variety Protection practitioners

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