NCSS

Center for Seeds and Seedlings, 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)



Production of foundation seeds (potato tubers)



DNA analysis (Protection of PBR)



Production of foundation seeds (sugarcane seedlings)



Germination test



Various varieties of sweet potato (genetic resources)

Organization Chart



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 (<u>D</u>istinctness, <u>U</u>niformity, and <u>S</u>tability) 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





Lettuce



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

Off type

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...



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.







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 health testGermination test

Other seed determination

Testing for seed-borne diseases

• Purity test

Moisture test

Issuance of certificates [Main testing item]

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Seed quality certificates

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ISTA international seed certificates

Certificates

Foreign customs office

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



Location



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