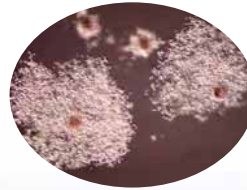
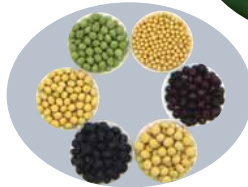
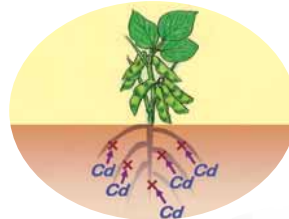




National Agricultural Research Center for Tohoku Region

National Agriculture and Food Research Organization (NARO)



Organization

Data (Jan. 1, 2007)

Staff members	297	Land	2,867,641 m²
Research staff	151	Head Quarters (at Morioka)	2,304,329 m ²
Technical staff	95	Daisen Research Station	419,836 m ²
General administration	51	Fukushima Research Station	143,476 m ²

Director-General

Department of Planning and General Administration

- General Administration Coordinator
- Senior Research Coordinator
- Planning and Promotion Section
- General Administration Section (at Morioka, Daisen, Fukushima)
- Information and Public Relations Section

Research Manager (5 staffs at Morioka, Daisen, Fukushima)

Rural Development Research Team (Tohoku Region)

Vegetable and Floricultural Research Team

Lowland Crop Rotation Research Team (Tohoku Region)

Forage Rice Research Team (Tohoku Region)

Grazing and Meat Production Research Team

Forage Production and Utilization Research Team

Summer and Autumn Strawberry Research Team

Cover Crop Research Team

Apple Pest Control Research Team

Climate Change Research Team (Tohoku Region)

Yamase Climate Research Team

Local Crop Research Team

Cadmium Research Team

Biomass Research Team (Tohoku Region)

Rice Bug Management Research Subteam (Tohoku Region)

Soybean Breeding Research Subteam (Tohoku Region)

Rice Breeding Research Subteam (Tohoku Region)

Soybean Physiology Research Subteam (Tohoku Region)

Noodle Wheat Research Subteam (Tohoku Region)

Forage Crop Breeding Research Subteam (Tohoku Region)

Reproductive Biology and Technology Research Subteam (Tohoku Region)

Bread Wheat Research Subteam (Tohoku Region)

Independent Researcher (4 staffs)

Research Support Center

- Technical Support Section 1
- Technical Support Section 2
- Technical Support Section 3
- Technical Support Section 4 (at Daisen)
- Technical Support Section 5 (at Fukushima)

Brief History

The National Agricultural Research Center for Tohoku Region (NARCT), founded in April 1950 as the Tohoku National Agricultural Experiment Station, was reorganized in April 2001 as a research institute of the National Agriculture Research Organization, an incorporated administrative agency. It was reorganized again as a research institute of the National Agriculture and Food Research Organization (NARO) in April 2006, a new incorporated administrative agency. The research center has 14 research and development teams plus eight sub-teams working to innovate regional agricultural technologies and ensure food safety and consumer confidence in food.

Missions

NARCT shares the research and development projects being implemented by NARO in accordance with its second medium-term plan (2006–2010). In close alliance with agencies both inside and outside NARO and universities, NARCT is conducting efficient and comprehensive research on farming in cold climates from medium and long-term perspectives, as well as basic and leading-edge research based on local characteristics. As a key regional agricultural experiment and research organization, NARCT supports research and development activities at public experimental and research institutes in the prefectures of the Tohoku region. At the same time it plays a pivotal role in planning and coordinating regional joint research programs among industry, academia, and government and in networking information on agricultural research and technology. Furthermore, it is strengthening ties with regionally advanced producers and consumers through alliance and cooperation with the Tohoku Regional Agricultural Administration Office, the prefectures of the Tohoku region, and agricultural promotion organizations.

Research Activities

NARCT is carrying out research and development projects in diverse areas. They include the breeding of cultivars such as paddy rice, wheat, soybeans, rapeseed, and strawberries suited for growing in the cold climate of the Tohoku region, one of Japan's food supply bases; the establishment of systems for the highly productive rotation of paddy crops; the development of a production technology for beef cows (mainly Japanese Shorthorns); efforts to reduce damage from environmental changes such as climatic warming and those brought by the *Yamase* (a northeasterly maritime wind that brings cool weather in summer); the development of a production control technology for crops cultivated by taking advantage of cold weather, a technology for analyzing and using the functional ingredients of crops and beef products, and a technology for resource conservation and environmentally friendly farming; and the formulation of measures to vitalize the Tohoku region. For further details of such activities, please refer to the pages in this brochure concerned with our research teams and subteams.



Location & Access

National Agricultural Research Center for Tohoku Region (Headquarters)

4 Akahira, Shimo-kuriyagawa, Morioka, Iwate 020-0198, Japan

TEL: +81-(0)19-643-3433

(8 minutes' walk from IGR Kuriyagawa Station or 20 minutes' ride on a bus bound for Sugo Depot from JR Morioka Station. Get off at the Nogyo Kenkyu Sentah-mae bus stop.)

Vegetable and Floricultural Research Team Summer and Autumn Strawberry Research Team

92 Nabeyashiki, Shimo-kuriyagawa, Morioka, Iwate 020-0123, Japan

TEL: +81-(0)19-643-3433

(25 minutes' ride on a bus bound for Sugo Depot from JR Morioka Station. Get off at the Kaju Kenkyusho-mae bus stop and walk for 3 minutes.)

Daisen Research Station

3 Shimo-furumichi, Yotsuya, Daisen-shi, Akita 014-0102, Japan

TEL +81-(0)187-66-1221

(3 minutes' walk from Kitaomagari Station, JR Tazawako Line)

Soybean Breeding Research Subteam (Tohoku Region)

297 Uenodai, Kariwano, Daisen-shi, Akita 019-2112, Japan

TEL: +81-(0)187-75-1084

(5 minutes' walk from Kariwano Station, JR Ohu Line)

Fukushima Research Station

50 Harajukuminami, Arai, Fukushima-shi, Fukushima 960-2156, Japan

TEL: +81(0)24-593-5151

(30 minutes' ride on a bus bound for Arai from the East Entrance of JR Fukushima Station. Get off at the Jieitai-mae bus stop (terminal) and walk for 3 minutes.)



Access to headquarters



Contact details for inquiries:

* **Switchboard: +81-(0)19-643-3433**

(General Affairs Team, Dep. of Planning and General Administration)

* **Joint research: +81-(0)19-643-3419**

(Planning and Promotion Section, Dep. of Planning and General Administration)

* **Research achievements, Publicity: +81-(0)19-643-3414, 3417**

(Information and Public Relations Section, Dep. of Planning and General Administration)

* **E-mail: www-tohoku@naro.affrc.go.jp**

* **Web site: <http://tohoku.naro.affrc.go.jp/>**



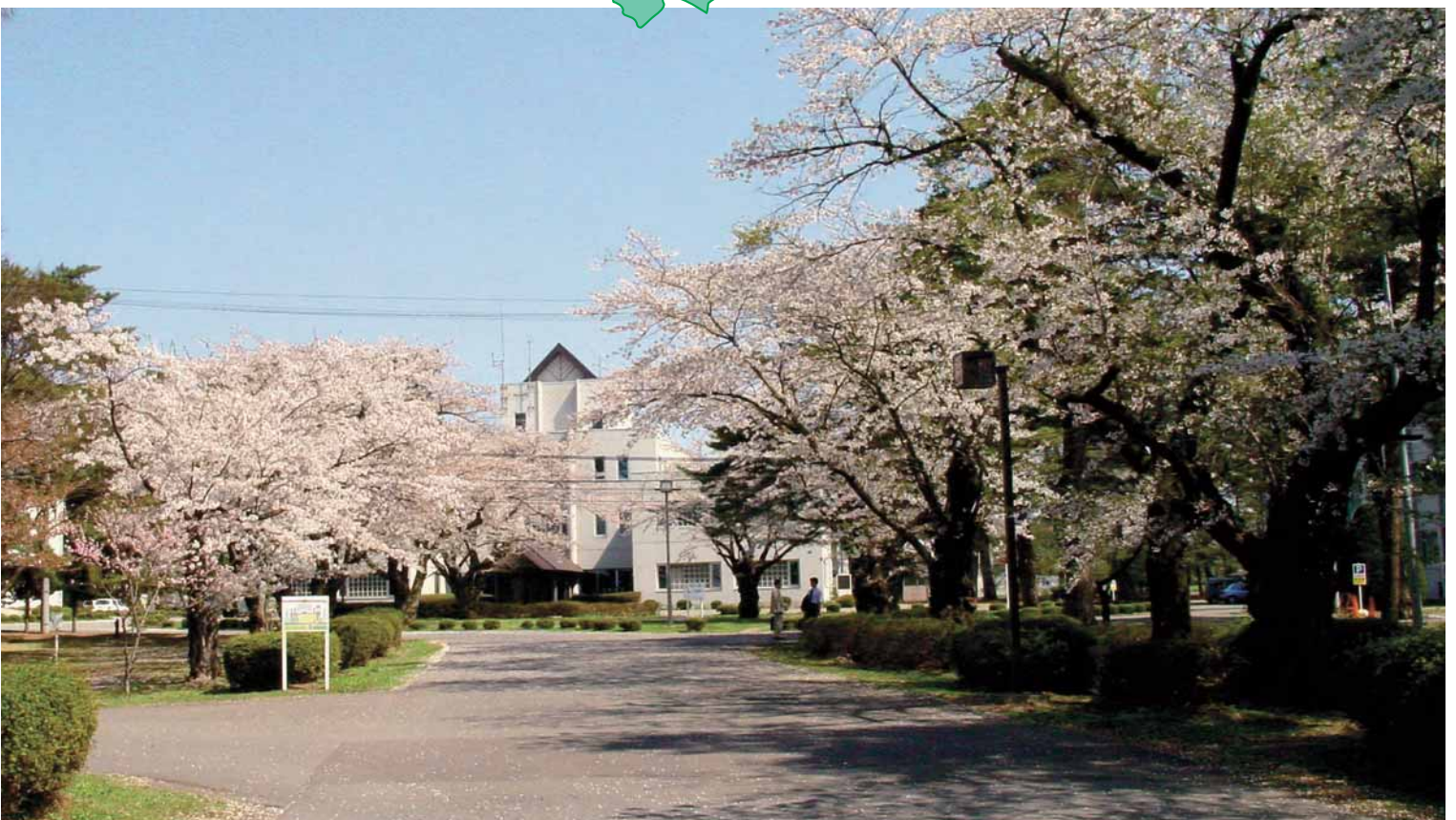
Daisen Research Station
(Daisen City)



Headquarters
(Morioka City)



Fukushima Research Station
(Fukushima City)



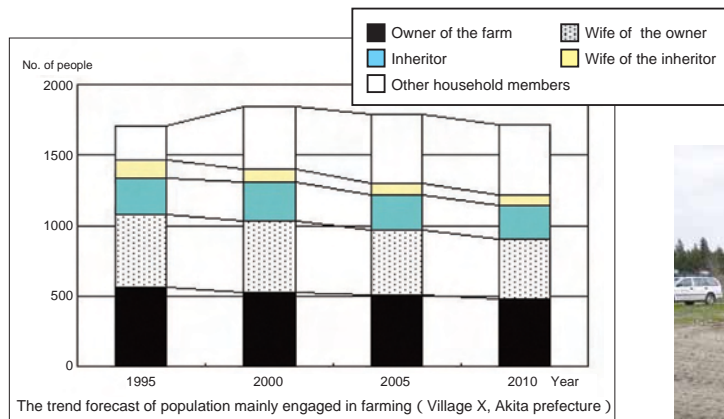
Rural Development Research Team (Tohoku Region)

Clarification of data on farmers willing to introduce innovative farming to the area. Development of new strategies for rural development through enhanced utilization of local crops.

- (1) Clarification of the gross economic trend in agriculture in the Tohoku region by analyzing agricultural census datasets and the results of interviews with farmers, and comparison of trends between the Tohoku and other regions.
- (2) Development of strategies for rural economic growth by reinforcing sales of local food resources, such as Japanese Shorthorn cattle, apples, and other crops, in the Tohoku region. Utilization of marketing research methods to support the development of these strategies, and clarification of new relationships between farmers and consumers aimed at revitalizing rural communities in the Tohoku region.



Evaluating a new variety of soybeans in a questionnaire of consumers.



A new method for analyzing long-term trends in farmers' job structures in the village or prefectural unit, in accordance with farmers' positions in their families (e.g. farm owner, wife of owner).



Finding a direction for improving farm management on the basis of actual research data from farmers.

Vegetable and Floricultural Research Team

Research on the stable production of vegetables and flowers in cool and snow-affected regions.

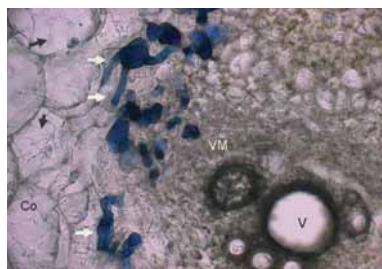
- (1) Research on growing systems and cultivars of bunching onion, Chinese cabbage, cooking tomatoes, etc.
- (2) Research on garlic storage and on development of spinach with low oxalic and nitric acid contents.
- (3) Research on characteristics of growth and flowering and development of high-quality production systems in ornamental crops (e.g. chrysanthemums and lilies).
- (4) Research on a simple facility for vegetable cultivation in winter.
- (5) Methods for control of *Phomopsis* root rot of cucumber and 'Kobu-sho' syndrome of Japanese gentian.



Short-leaved bunching onion (3 plants at left).



Flower malformation caused by high temperature in 'Iwano-hakusen' chrysanthemum (center and right).



Mycelia of *Phomopsis sclerotioides* invading roots of cucumber (white arrow: broad hyphae; black arrow: narrow hyphae; V: vessel; VM: vascular meristem).

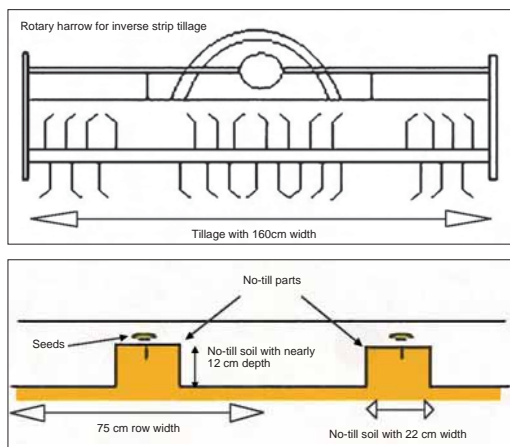
Lowland Crop Rotation Research Team (Tohoku Region)

Development of a highly productive lowland crop rotation system in the Tohoku region. Establishment of a lowland rotation system producing high-yielding, high-quality crops at low cost in the Tohoku region.

- (1) Establishment of a wheat-soybean relay-intercropping system and a lowland soybean cultivation system for the prevention of wet and drought injury, and development of effective methods of fertilizer application and weed and pest control for lowland crop rotation.
- (2) Establishment of direct-seeding rice cultivation by using an auto-irrigation system and labor-saving rice cultivation with molded rice-hull mats into which seeds are glued; investigation of nitrogen dynamics in paddy fields and structuring of a lowland crop rotation system.



Soybean seeding in wheat-soybean relay-intercropping system.



Soybean cultivation with inverse strip-tillage seeding.



Inverse strip tillage Conventional tillage



Direct seeding of paddy rice with a grain drill on an upland field.

Forage Rice Research Team (Tohoku Region)

Establishment of a resource-circulating regional farming system in the Tohoku region with intensive use of rice paddy fields and linkage between stock farming and cultivation.

- (1) Developments of low-cost cultivation, processing and storage technologies for forage rice, including new forage rice varieties and composted livestock manure.
- (2) Development of an efficient technology for feeding beef cattle on high-quality whole-crop rice silage.
- (3) Demonstration of a high-quality forage rice cultivation and feeding technology for increasing forage rice production.



Method of direct-seeding of new forage rice varieties.



Low-cost harvesting and processing technique that uses a Japanese head-feed combine.



Investigation of effects of feeding whole-crop rice silage to beef cattle.



Conversion of livestock wastes to organic resources.

Grazing and Meat Production Research Team

Development of beef production techniques based on grazing of public pastures, and establishment of a strategy for revitalizing hilly and mountainous areas.

- (1) Development of healthy and high-quality beef production techniques, including grazing techniques, in Japanese Shorthorn, and development of a beef quality evaluation method.
- (2) Development of a marketing strategy for beef produced on public pastures, and development of a marketing support system.



Production of a Japanese Black calf by embryo transfer in a Japanese Shorthorn (left).
Development of an efficient calf-raising technique through parent-offspring grazing



Development of techniques for decreasing the stress suffered by grazing cattle as a result of pest infestation.



Elucidation of the properties of Japanese Shorthorn beef to develop a technology for improving lean beef quality.

Forage Production and Utilization Research Team

Development of technologies for production and utilization of forage crops and for management of grassland ecosystems in cold regions.

- (1) Low-input system of production of silage corn using no-till seeding techniques.
- (2) Utilization of new festulolium varieties for grazing and silage.
- (3) Sustainable grazing management of grassland, environmental monitoring of the impact of anthelmintics on grassland ecosystems, and evaluation of antioxidative activity of herbaceous plants.



Living mulch for weed control and soil-fertility improvement in no-till corn production.



Sustainable grazing management of semi-natural grasslands.

Summer and Autumn Strawberry Research Team

Development of new technologies for vegetable production under protected cultivation, and particularly for the production of strawberries in summer and autumn.

- (1) Breeding of everbearing strawberry cultivars for cool climate regions.
- (2) Development of technologies for production of strawberries in summer and autumn by using everbearing cultivars, short-day treatment, and over-wintered plants under the cool climate of the Tohoku region.



Short-day treatment of strawberry. We can produce strawberries from late September onward by using this equipment.

New cultivars of everbearing strawberry: 'Natsuakari' (left) and 'Dekoruju' (right). We can produce strawberries from June to November by using everbearing cultivars.



Cover Crop Research Team

Developing environmentally-sound cultivation practices with cover-cropping.

- (1) Evaluation of the effects of cover crops (cover plants killed before establishment of the crop) and living mulch (cover plants and main crops grown together for all or part of the growing season) on rhizosphere dynamics, soil nutrients, insect fauna, and weed populations.
- (2) Development of cultivation techniques for soybean and vegetable production with low agrochemical and fertilizer input by using cover crops or living mulches in cold climates.



Soybean production using a barley cover crop to control weeds.



Sweet corn production using a clover living mulch to control weeds and reduce fertilizer input.

Predacious natural enemies (Carabid beetles) found in living mulch fields.



Apple Pest Control Research Team

Establishment of apple culture with 50% less chemical pesticide use than the present standard in the Tohoku region.

- (1) Development of new apple culture with 50% less chemical pesticide use than the present standard by using new multiple mating disrupters and enhancing pest and disease forecasting.
- (2) Reducing pesticide drift among apple, pear, and peach orchards, developing a common pest control system for these fruit trees, and establishing tree forms suitable for highly effective pesticide deposition.



Multiple mating disrupter for apple, containing the pheromone components of six key pests.



Marssonina blotch, an apple disease that has recently become serious.



Weed control alternative to herbicide use: weeding the under-canopy of an apple tree by riding type mower.

Climate Change Research Team (Tohoku Region)

Technological adaptation of crop production to global change under a cool temperate climate.

- (1) Effects of elevated temperature and CO₂ concentration on crop growth, yield, and grain quality.
- (2) Changes in crop susceptibility to biotic and abiotic stresses due to elevated temperature and CO₂ concentration.
- (3) Migration of southern insects to northern areas.
- (4) Effects of global warming on methane emissions from rice paddies, and alternative measures for reducing methane emissions.



Free-air CO₂ enrichment (FACE) experiment at Shizukuishi, Iwate, as part of research on the effects of elevated CO₂ on rice growth and paddy ecosystems.



Temperature gradient chamber for research on the effects of interactions of temperature and CO₂ concentration on crops.

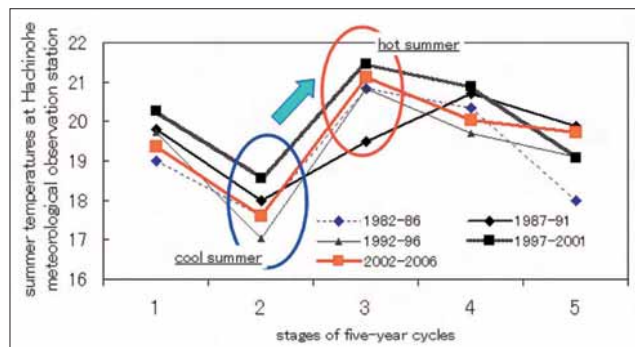


Increased susceptibility of rice plants to rice blast disease under elevated CO₂.

Yamase Climate Research Team

Improvements in the technologies of growth estimation and reduction in meteorological damage to main crops, such as rice, under the climatic variations produced mainly by the *Yamase* (a northeasterly maritime wind that brings cool weather in summer). Development of a crop-growing technology utilizing cool-climate resources. Analysis of cyclic variations in summer weather in northern Japan.

- (1) Development of a system avoiding crop damage from cool weather using weather forecasting data.
- (2) Functional analysis of the genes related to cool tolerance, and establishment of gene pyramiding for blast resistance in rice plants.
- (3) Development of sophisticated crop-productive technology utilizing cool climatic resources.
- (4) Establishment of a strategic agricultural technology based on long-range weather forecasting.



Five-year cyclic variations in summer temperature from 1982 onward.



Functional analysis of the genes related to cool tolerance, and establishment of gene pyramiding for blast resistance in rice plants.

Morphological changes in spinach grown under cold (left), cool (middle), and warm temperatures (right).



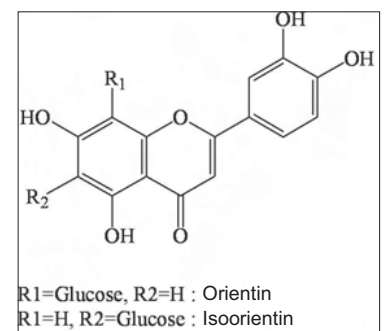
Local Crop Research Team

Breeding of superior cultivars and development of a technology to utilize local crops in the Tohoku region.

- (1) Breeding of oilseed rape with high oleic acid content or double-low (non-erucic acid and low glucosinolate) quality; Job's tears with early maturity, short height, and hard shattering; and buckwheat with early maturity, high yield, and lodging tolerance.
- (2) Evaluation of *in vivo* antioxidant activity of millets and buckwheat; analysis of mycotoxins produced by pathogenic fungi (*Penicillium expansum*) in apples; evaluation of the functionality of mulberry leaf products; and study of valuable components of Japanese gentian, etc.



The double-low quality oilseed rape cultivar 'Kirariboshi', first cultivated in Japan.



Elucidation of functionalities such as the *in vivo* antioxidant activity of buckwheat sprouts, which abounds in flavonoids.



Mulberry tea

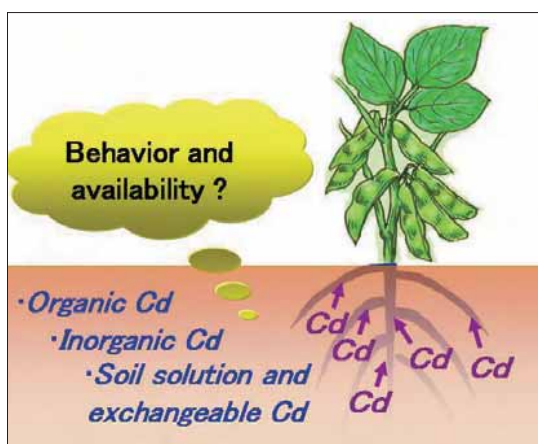
Food-grade mulberry leaf enriched with 1-deoxynojirimycin suppresses the elevation of postprandial blood glucose.

Mulberry leaf extract

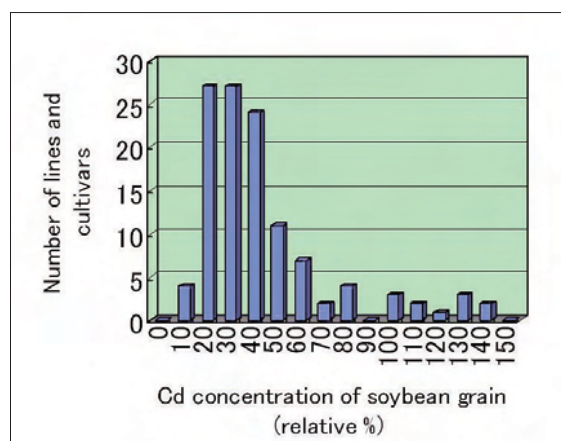
Cadmium Research Team

Investigation of behavior and status of cadmium in soils and crops from successive paddy rice cultivation or paddy-upland rotation farming, and development of rice and soybean lines with low cadmium-accumulating characteristics.

- (1) Investigation of the influence of soil management practices in farming on the behavior and status of cadmium (Cd) in soils and crops from successive paddy rice cultivation or paddy-upland rotation farming in the Tohoku region, and development of a soil-testing procedure to predict Cd concentrations in edible portions of crops.
- (2) Development of rice and soybean lines accumulating much less Cd in the grains than recent cultivars, and selection of wheat cultivars with low Cd-accumulating characteristics from among recent cultivars.



Investigation of behavior and availability of Cd in soils, and development of a soil-testing procedure to predict Cd concentrations in soybean grains.

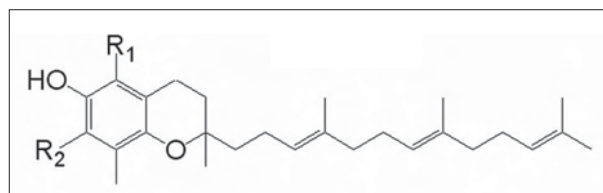


Development of soybean lines with low-Cd characteristics on the basis of the large differences in grain Cd concentration among soybean cultivars.

Biomass Research Team (Tohoku Region)

Development of techniques for cascade utilization of non-utilized crop residues in the cold (Tohoku) region.

- (1) Development of techniques for cascade utilization of unutilized crop residues such as rice bran, husks, and straw, which are discharged in great quantities from large-scale paddies in the Tohoku district. Establishment of a regional system for recycling biomass resources in the Tohoku region.
- (2) Development of a mechanized farming system for rape, with special focus on labor saving and cost reduction. Development of techniques to utilize secondary products of the recycling system for rape. Assessment of a mass (energy) balance sheet and economy of the rape recycling system. Clarification of rape recycling system that can be introduced and materialized in the Tohoku region.



Chemical structure of tocotrienol. Development of techniques for extraction and purification of tocotrienol contained in rice bran by using simulated moving bed chromatography.

Novel feed containing gamma amino butyric acid (GABA) processed from Musenmai (bran-eliminated rice) residue.



Harvest of rapeseed with a combine harvester. Development of a labor-saving and cost-reducing system of mechanization of rape cultivation.

Rice Bug Management Research Subteam (Tohoku Region)

Elaboration of technologies for predicting the occurrence of pecky rice bugs and development of a pecky rice management system.

(1) Clarification of pecky rice bug diversity by using molecular markers.

(2) Development of a pecky rice management system by analysis of the split-hull paddy feeding behavior of bugs.



Trigonotylus caelestialium, a pecky rice bug that causes heavy losses of rice production in the Tohoku region.



Stenotus rubrovittatus, a pecky rice bug rapidly expanding its distribution in the Tohoku region.



Split-hull paddy.

Soybean Breeding Research Subteam (Tohoku Region)

Breeding of food-grade soybean cultivars that have high adaptability to management by labor-saving machinery, processing suitability, and pest and disease resistance; and development of techniques for stabilizing seed quality.

(1) Breeding of soybean cultivars that are suitable for tofu processing and for cultivation in cool climate areas such as the Tohoku region, and that have good seed appearance, lodging tolerance, and high combine-harvesting adaptability. Breeding for distinctive soybean cultivars with green or black seed coats, small seeds, and lipoxygenase deficiency, etc. for special food uses, corresponding to regional needs.

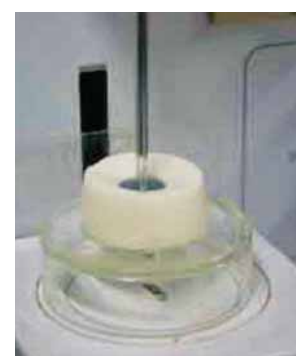
(2) Clarification of soybean seed ingredients affecting tofu-processing suitability (especially taste and hardness).



The Tohoku region's leading soybean cultivar 'Ryuhou', which has excellent tofu-processing suitability.



Soybean seeds with green (left) and black (middle) seed coats, and small size (right), and their typical food products.



Measuring the hardness of experimentally produced tofu cake by rheometer.

Rice Breeding Research Subteam (Tohoku Region)

Breeding of rice cultivars for highly productive forage, low-cost processing, and suitability for direct-seeding cultivation.

- (1) Breeding of whole-crop silage rice cultivars with early maturity, direct-seeding adaptation and high yield, and without lodging under heavily composted conditions, to enhance self-sufficient feed supply.
- (2) Breeding of new characteristic rice cultivars such as those with low amylose content, high-yielding pigmented rices for direct seeding, and rices with blast resistance to enable lower-cost processing.



The whole-crop silage rice cultivar 'Bekoaoba', which has intermediate to late maturity and has been adapted for the Tohoku region.



Feeding cows with whole-crop silage rice.

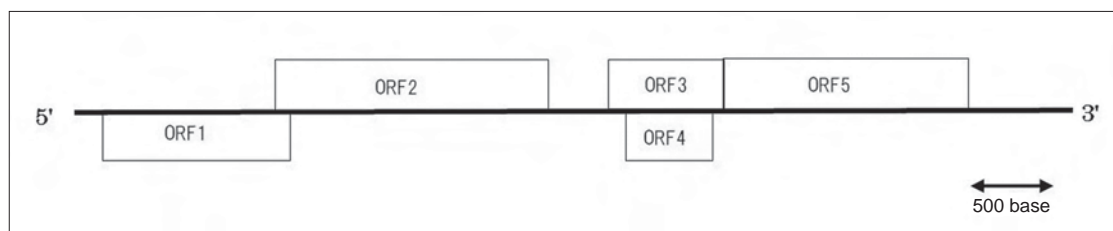


The rice cultivar 'Moeminori', suitable for direct seeding (right), and the cultivar 'Akitakomachi' (left).

Soybean Physiology Research Subteam (Tohoku Region)

Development of technologies to control soybean virus diseases.

- (1) Development of crop-improvement technologies for soybean dwarf virus (SbDV) resistance by introducing part of the viral genome into the soybean plant.
- (2) Development of a technology to control soybean virus diseases by investigating their transmission by insects and their replication mechanisms.



Genome organization of SbDV.
ORF1,2: Replicase-related proteins; ORF3: coat protein;
ORF4: movement protein; ORF5: aphid transmission factor.
(Possible products of ORFs 1, 2, 4, and 5 are indicated.)

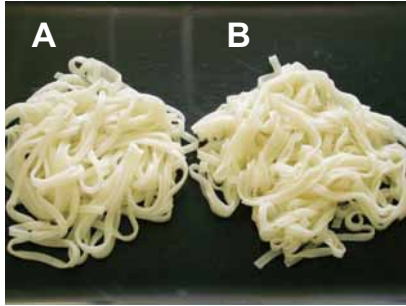


Pea aphids that transmit SbDV.

Noodle Wheat Research Subteam (Tohoku Region)

Breeding of noodle wheat cultivars and development of techniques for quality stabilization.

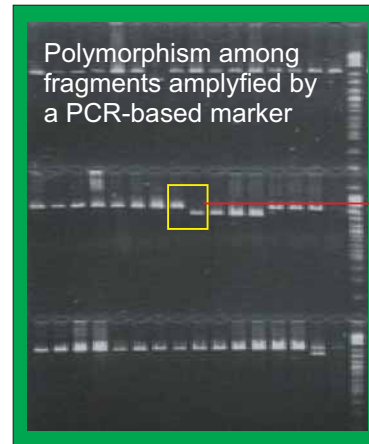
- (1) Improvement of flour color by the identification of factors that decrease endosperm brightness.
- (2) DNA marker development and introduction of marker-assisted selection (MAS) into breeding programs to accelerate the production of advanced varieties for noodle-making.



Color comparison between noodles produced from commercial flour (A) and flour from our new variety 'Nebari-Goshi' (B).



DNA microarray analysis of genes expressing endosperm tissues.



DNA marker selection of low-amylose lines.

Forage Crop Breeding Research Subteam (Tohoku Region)

Breeding of corn and pasture grasses for high herbage yield and quality.

- (1) Development of new forage grass cultivars that have high quality and adaptability and should be effective in increasing domestic sufficiency in forage.
- (2) Breeding of festulolium and ryegrass suitable for cool temperate zone.



'Tohoku No. 1 festulolium' is adapted to the production of silage or hay in the lowlands of the Tohoku region.

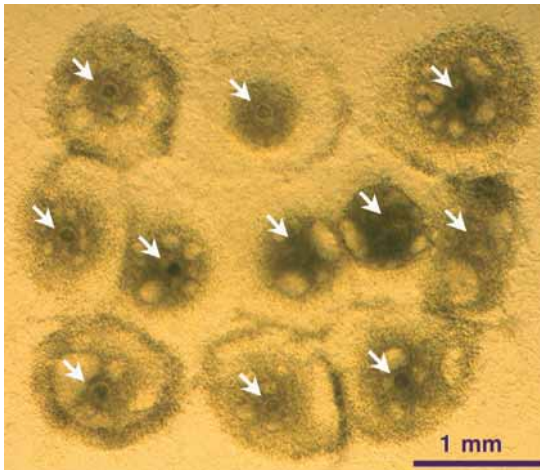


A population of annual ryegrass with improved snow endurance (right half), and the existing cultivar 'Waseaoba' (left half).

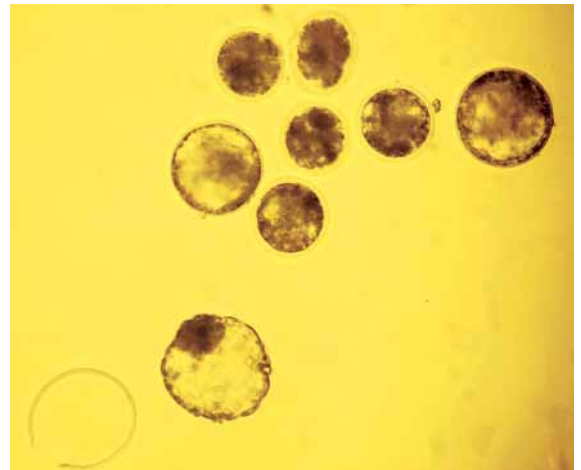
Reproductive Biology and Technology Research Subteam (Tohoku Region)

Development of more stable technologies for cattle production, including cloning for livestock products of great value.

- (1) Development of technologies for the production and utilization of bovine eggs made from growing immature oocytes *in vitro*.
- (2) Improvement of technologies for the production and preservation of bovine embryos of high value from excellent individuals.
- (3) Detailed clarification of uterine functions in cattle to determine the criteria for distinguishing cows that are potentially incompetent recipients for embryo transfer, and application of the results to the improvement of pregnancy rates.



Growing oocytes after 11 days *in vitro* (arrows). They will be ready to mature in about a week.



Blastocysts developed from *in vitro*-grown bovine oocytes.

Bread Wheat Research Subteam (Tohoku Region)

Development of wheat cultivars adapted to the Tohoku region, and improvement in bread- and noodle-processing quality to levels acceptable to processors. Development of methods for maintaining wheat quality.

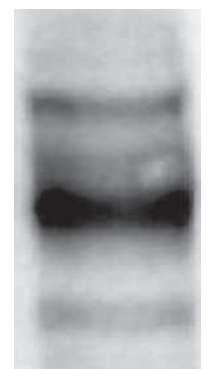
- (1) Development of bread- and noodle-processing wheats adapted to the Tohoku region by the improvement of cold-tolerance, disease-resistance, and pre-harvest-sprouting.
- (2) Development of a new wheat processing method by investigating the digestion of allergenic proteins by a protease from germinated wheat.
- (3) Development of food-grade barley adapted to the Tohoku region by improving heading, cold-tolerance, and disease-resistance.



Bread-baking evaluation of an elite wheat line.



Resistance to leaf rust (red uredia) and powdery mildew (white mycelial colony) is an important agronomic trait in the Tohoku region.



Detection of allergenic wheat proteins by immunoblotting.

Department of Planning and General Administration

Planning and coordination of experimental and research activities; promotion of joint research through industry, academia, and public-sector cooperation; management of intellectual property rights in regard to patents, seeds, and seedlings; provision of publicity for research achievements; collection and control of research information; and management of budgets, staffing, and facilities.



Open research laboratories designed to promote joint research with organizations outside NARCT.

Above: Agricultural and Livestock Products Function Evaluation Laboratory Building

Below: Gradiotron: Temperature Gradient Experiment Facility

Exhibitions at a symposium on the creation of Tohoku agribusiness through alliances among industry, academia, and the public sector.



Publications (bulletins, PR magazines, brochures for publicizing research achievements, etc.)



Research Support Center

Management of farms, crops, and livestock for the promotion of research.



Harvesting forage rice.



Preparation of round bales of forage grass.



Explanation of new techniques as part of extension activities in a farmer's field.



Brief History

On April 1, 2001, the National Agriculture and Research Organization was formed as an incorporated administrative agency of the Japanese Government by the merger of 12 agricultural research centers of the Ministry of Agriculture, Forestry and Fisheries.

On October 1, 2003, it was integrated with the Bio-oriented Technology Research Advancement Institution and renamed the National Agriculture and Bio-oriented Research Organization.

On April 1, 2006, it was further integrated with the National Research Institute of Agricultural Engineering and the National Food Research Institute and the National Farmers Academy to become the National Agriculture and Food Research Organization (NARO).

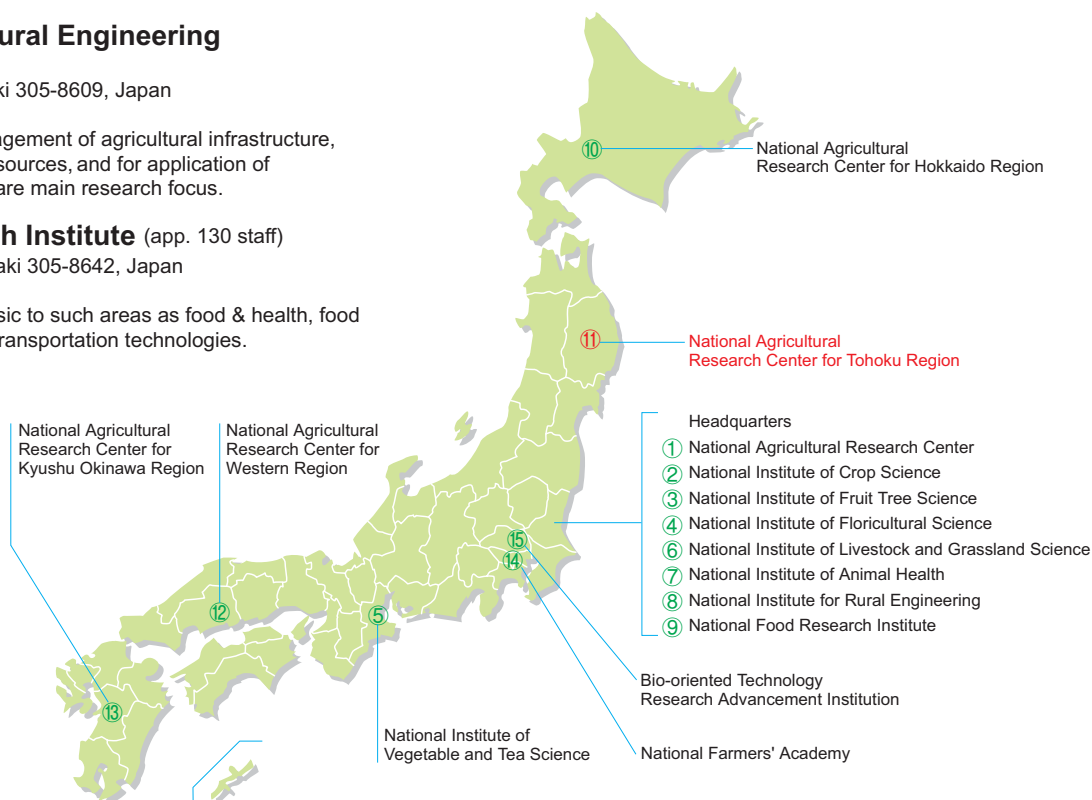
Missions

NARO follows policies laid out in March 2005 for its new basic plan for food, agriculture, and farming villages, as well as its basic plan for research on agriculture, forestry and fisheries, its research concept for these areas, and its priority research goals. In accordance with these policies, NARO is dedicated to research and development centering on technologies concerned with production bases, agricultural production, food processing, and distribution and consumption of agricultural products. It is also concerned with promoting a consistent application technology that contributes to the revival of farming villages and promotion of the food industry; individual research institutes and centers of the organization each perform their respective functions towards meeting these goals. NARO aims to strengthen the competitiveness of Japan's agricultural and food industries; promote their sound growth; ensure food safety and consumer confidence in food; improve people's eating habits; realize a beautiful land, a rich environment, and a more relaxed national lifestyle; develop next-generation agricultural and food industries; create a new bio-industry; and foster those who will assume important roles in farming.

Research and Development Activities

1. Establishment of technologies and systems for the improvement of agricultural productivity and sustainable growth of agriculture by implementing such measures as efficient crop rotation in rice paddies and fields, domestic fodder-based livestock production, better animal healthcare, and profitable horticulture.
2. Performing the R&D needed to encourage farming villages to improve and manage their infrastructure for agricultural production and thus their living environments; preserve regional resources such as farmland and irrigation; and provide technologies to help agricultural industries and communities diversify their operations.
3. Performing of R&D to ensure the safety of agricultural produce and food; analyze the functional features of food; and provide technologies to improve food quality and develop new food processing methods in order to gain consumer confidence and realize sound dietary habits.
4. Fostering of next-generation farmers by teaching them the lessons learned by R&D, as well as advanced agricultural technology and business management.
5. Providing support for R&D in bio-oriented technologies undertaken by private businesses, universities, incorporated administrative agencies, etc. to develop next-generation agriculture, forestry, and fisheries and to create new industries.
6. Development, improvement, inspection, and appraisal of highly efficient agricultural machines to promote the mechanization of farming.

- ① **National Agricultural Research Center** (app. 350 staff)
3-1-1 Kannondai, Tsukuba, Ibaraki 305-8666, Japan
TEL +81-(0)29-838-8481
Hokuriku Research Center (branch laboratory).
1-2-1 Inada, Jouetsu, Niigata 943-0193, Japan TEL +81-(0)25-523-4131
The center for agriculture research and innovation as well as specific agricultural R&D for the central region of Honshu (i.e. Kanto, Tokai and Hokuriku).
- ② **National Institute of Crop Science** (app. 60 staff)
2-1-18 Kannondai, Tsukuba, Ibaraki 305-8518, Japan
TEL +81-(0)29-838-8819
Rice, wheat, soybean, and sweet potato are the focus of basic research, breeding, cultivation technology, and quality improvement.
- ③ **National Institute of Fruit Tree Science** (app. 190 staff)
2-1 Fujimoto, Tsukuba, Ibaraki 305-8605, Japan
TEL +81-(0)29-838-6416
Citrus fruits, apple, pear and other fruits are the focus of basic research, breeding, cultivation physiology, quality improvement, and control of pest and disease.
- ④ **National Institute of Floricultural Science** (app. 40 staff)
2-1 Fujimoto, Tsukuba, Ibaraki 305-8605, Japan
TEL +81-(0)29-838-6801
Floricultural researches from basic to breeding, cultivation & environment technologies, transportation technology and value creation.
- ⑤ **National Institute of Vegetable and Tea Science** (app. 180 staff)
360 Kusawa, Ano, Tsu, Mie 514-2392, Japan TEL +81-(0)59-268-1331
Vegetable and tea are the focus for basic research, breeding, cultivation & environment technologies, quality improvement and transportation technology .
- ⑥ **National Institute of Livestock and Grassland Science** (app. 330 staff)
2 Ikenodai, Tsukuba, Ibaraki 305-0901, Japan
TEL +81-(0)29-838-8600
Nasu Research Station (branch laboratory).
768 Senbonmatsu, Nasushiobara, Tochigi 329-2793, Japan
TEL +81-(0)287-36-0111
Integrated research covers fodder production, domestic livestock production, and waste management & use.
- ⑦ **National Institute of Animal Health** (app. 260 staff)
3-1-5 Kannondai, Tsukuba, Ibaraki 305-0856, Japan
TEL +81-(0)29-838-7713
Research of animal health and disease prevention for safe and quality food products.
- ⑧ **National Institute for Rural Engineering** (app. 120 staff)
2-1-6 Kannondai, Tsukuba, Ibaraki 305-8609, Japan
TEL +81-(0)29-838-7513
Technology for sustainable management of agricultural infrastructure, rural life environment, regional resources, and for application of multifunctionalities of agriculture are main research focus.
- ⑨ **National Food Research Institute** (app. 130 staff)
2-1-12 Kannondai, Tsukuba, Ibaraki 305-8642, Japan
TEL +81-(0)29-838-7971
Integrated food research from basic to such areas as food & health, food safety, processing sciences and transportation technologies.
- ⑩ **National Agricultural Research Center for Hokkaido Region** (app. 290 staff)
1 Hitsujigaoka, Toyohira, Sapporo, Hokkaido 062-8555, Japan
TEL +81-(0)11-851-9141
R&D focusing on such regional needs as establishing large-scale production system and technologies to overcome severe natural environment of Hokkaido.
- ⑪ **National Agricultural Research Center for Tohoku Region** (app. 300 staff)
4 Akahira, Shimo-kuriyagawa, Morioka, Iwate 020-0198, Japan
TEL +81-(0)19-643-3433
R&D focusing on such regional needs as cold-weather damage prevention measures, etc.
- ⑫ **National Agricultural Research Center for Western Region** (Western Region: Kinki, Chugoku and Shikoku) (app. 270 staff)
6-12-1 Nishi-fukatsucho, Fukuyama, Hiroshima 721-8514, Japan
TEL +81-(0)84-923-4100
Shikoku Research Center (branch laboratory).
1-3-1 Senyuu, Zentsuui, Kagawa 765-8508, Japan
TEL +81-(0)877-62-0800
R&D focusing on such regional needs as optimum farming systems in mountainous and hilly conditions, etc.
- ⑬ **National Agricultural Research Center for Kyushu Okinawa Region** (app. 290 staff)
2421 Suya, Koshi, Kumamoto 861-1192, Japan
TEL +81-(0)96-242-1150
R&D focusing on such regional needs as multiple use of rice fields, etc.
- ⑭ **National Farmers' Academy** (app. 20 staff)
3-23-1 Renkouji, Tama, Tokyo 206-0021, Japan
TEL +81-(0)42-375-8511
Education for next generation farmers through advanced agricultural technology and management skills.
- ⑮ **Bio-oriented Technology Research Advancement Institution** (app. 100 staff)
1-40-2 Nisshin, Kita-ku, Saitama, Saitama 331-8537, Japan
TEL +81-(0)48-654-7000 FAX +81-(0)48-654-7129
Integrated research on facilitation of agricultural mechanization and approval inspection of machinery.
Tokyo Office
10F Toranomom Marine bldg., 3-18-19 Toranomom, Minato-ku, Tokyo 105-0001, Japan
TEL +81-(0)3-3459-6565 FAX +81-(0)3-3459-6566
• Promotion of basic research activities for innovative biosciences.
• Promotion of research activities in the private sector.





**National Agricultural Research Center
for Tohoku Region**
National Agriculture and Food Research Organization (NARO)

<http://tohoku.naro.affrc.go.jp/>