

Developing Agriculture for the Future in Eastern Sendai

Agriculture in Eastern Sendai: Chronicle of Recovery Summary



March 2015

City of Sendai



People were transfixed at the sight of their land covered by water after the devastating tsunami.

Striving to recover from the catastrophic disaster

With our knowledge, experience and hard work, we are assured of reviving our farmland. With unwavering faith and conviction in ourselves, we have achieved our goals of recovery and reconstruction from the disaster and are advancing steadily into the future.



Our first priority was to start removing debris as soon as possible!



With great hopes and dreams for tomorrow, a reconstruction plan was started.



Damage from the Great East Japan Earthquake



Aerial photo of the Fujitsuka district in Wakabayashi Ward on March 18, 2011



The Shichigo district in Wakabayashi Ward photographed on March 18, 2011



The Sendai City Agriculture & Horticulture Center was damaged by the tsunami on March 11, 2011



The Rokugo district in Wakabayashi Ward photographed on March 24, 2011



The Nigobori Drainage Pumping Station photographed on March 21, 2011



Farming gradually resumed with the expectation of a bountiful harvest.



The road to the future starts here.



Outline of earthquake

Name of Earthquake	The 2011 Tohoku Earthquake off the Pacific coast (Great East Japan Earthquake)
Date	March 11, 2011 at 14:46
Epicenter	Off the coast of Sanriku (latitude 38°6.2'N, 142°51.6'E)
Scale	Magnitude 9.0
Seismic intensity in Sendai on the Japanese scale	Intensity of 6 plus, Miyagino Ward Intensity of 6 minus, Aoba Ward, Wakabayashi Ward, Izumi Ward Intensity of 5 plus, Taihaku Ward
Tsunami	On March 11, 14:49, Major tsunami warning was issued for the Pacific coastal region Height of tsunami: Sendai-Shiogama Port 7.2 m (Estimate) (An hour later after the earthquake occurred, the first wave of the tsunami arrived)

*Maximum aftershock: April 7, 2011 at 23:32; Magnitude 7.2 off the coast of Miyagi Prefecture
Intensity of 6 plus on the Japanese scale, Miyagino Ward
Intensity of 6 minus on the Japanese scale, Aoba Ward and Wakabayashi Ward
Intensity of 5 plus on the Japanese scale, Izumi Ward
Intensity of 5 minus on the Japanese scale, Taihaku Ward

Damage in the eastern Sendai area

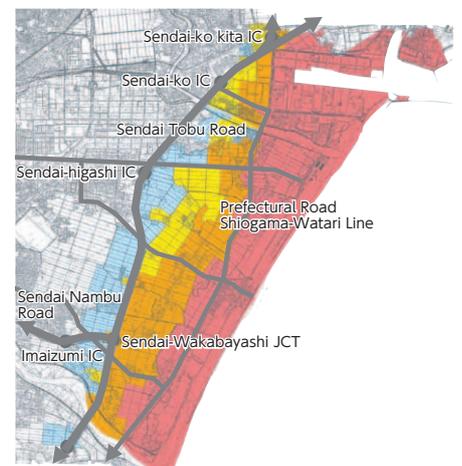
Inundation disaster area

Area population	21,966
Area households	8,086
Land area	4,633 ha
Number of buildings	12,277

Amount of damage in agriculture, forestry and fishery industries

73.4 billion yen

- 1. Damage in agriculture** 72.1 billion yen
 - (1) **Farmland** 39.6 billion yen
Damaged farmland: ca. 1,800 ha (Rice paddies: 1,600 ha, vegetable fields: 200 ha)
 - (2) **Machines and facilities used in agriculture** 10.6 billion yen
Plastic greenhouses, grain elevators, etc.
 - (3) **Land improvement facilities** 21.9 billion yen
Drainage pumping stations (4 locations), water channels, farm roads, etc.
- 2. Damage in forestry industries** 0.07 billion yen
23 forest road lines
- 3. Damage in fishery industries** 1.3 billion yen
Fishing boats, laver culture facilities, tide embankments, joint facilities, etc.



Tsunami damage *The above areas are categorized according to a field survey

- Red: Areas where houses were washed away by tsunami; areas where houses were flooded up to the first-floor ceiling
- Orange: Areas where houses were flooded to 1 m or more above floor level; areas where tsunami debris accumulated in buildings
- Yellow: Areas of inundation above floor level
- Blue: Areas of inundation below floor level

Vigorous revitalization of agriculture Agriculture and Food Frontier Project



A temporary drainage pump was used to drain water

The Ohori Drainage Pumping Station was temporarily restored



(Courtesy of Ministry of Agriculture, Forestry and Fisheries)

Removal of debris using heavy machinery



Tsunami-damaged Nigobori Drainage Pumping Station



Agricultural Disaster Reconstruction Liaison Meeting for the Eastern Sendai Area



Desalination work



Removing tiny pieces of debris



Rice planting

1 From restoration of farmlands to resumption of farming

Restoration of farmlands

Temporary drainage pumps were promptly installed on March 20, 2011, only nine days after the disaster, to start draining seawater that had flooded the farmlands. At the same time, salinity damage was investigated at 170 sections of the affected farmlands to set up an agriculture resumption plan for the area. The removal of debris was started in July 2011, and completed in late December of the same year so that farming could be resumed in time for the following spring.

The central government implemented measures to remove sludge from farmlands, fill them with soil, and restore farm roads and irrigation/drainage channels. The catastrophically damaged pumping stations at four sites were temporarily restored with a total of eleven pumps operating by June 2012, securing the same level of drainage capacity as before the disaster.

Establishment of "Agricultural Disaster Reconstruction Liaison Meeting for Eastern Sendai"

In April 2011, Sendai City, Sendai Higashi Land Improvement District and JA Sendai established the "Agricultural Disaster Reconstruction Liaison Meeting for Eastern Sendai". It involved deliberation on various post-disaster measures and actions and contributed to speedy decision making toward restoration and reconstruction.

Resumption of farming after the disaster

In May 2012, out of the 1,860 hectares of damaged farmland, farming first resumed on an area of 560 hectares that had been restored and desalinated.

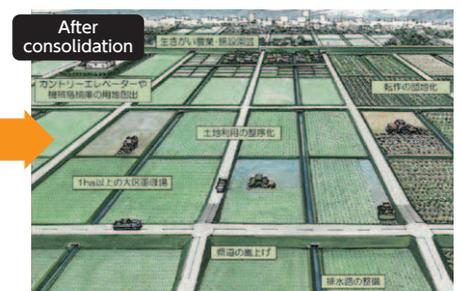
2 Promotion of farmland consolidation

Farmland consolidation was started by combining the many small and irregular-shaped agricultural plots in eastern Sendai into larger plots. Together with the central government and Miyagi Prefecture, Sendai City is implementing measures to improve the efficiency of farming and convert conventional agriculture to a more productive and competitive system based on well-organized one-hectare plots of farmland.



Before consolidation

- Narrow farm roads were obstacles to efficient farming practices.
- Poor drainage



After consolidation

- Improved farm roads have raised the efficiency of farming practices.
- Improved drainage
- Borrowing and lending of farmland plots progresses smoothly.

3 Support for agricultural management

Comprehensive support project for agricultural restoration in disaster-stricken areas (Leasing)

The city buys large machines and facilities to replace those that were swept away by the tsunami (including tractors and plastic greenhouses for raising seedlings) and leases them, free of charge, to groups such as community-based farm cooperatives.

The Great East Japan Earthquake subsidy for agricultural production measures

The national, prefectural and municipal governments have continued to offer financial support to groups organized by farmers so that they can buy or repair joint-use facilities, as well as lease agricultural machines and materials.

Emergency installation of plastic greenhouses for vegetables and flowers

The city subsidizes part of the expenses to disaster-stricken farmers (including farming groups and certified farmers) for installation of plastic greenhouses.

Special Zone for Promoting Agriculture and Food Frontier

Using the central government's special reconstruction program, the city has launched the "Special Zone for Promoting Agriculture and Food Frontier" project and is offering special tax provisions to farmers so that they can obtain agricultural machinery or establish new corporations with greater ease.



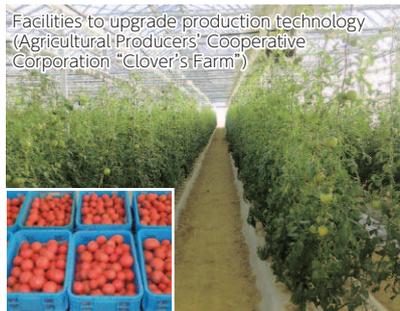
Rice planting machine, combine, tractor



Plastic greenhouse for raising seedlings



Well



Facilities to upgrade production technology (Agricultural Producers' Cooperative Corporation "Clover's Farm")



Agricultural Producers' Cooperative Corporation "Sendai Eastcountry"

4 Measures taken in FY 2014

Resumption of farming in large consolidated farmland plots

Farming resumed in the Ido district, Wakabayashi Ward, where conventional farmland plots had been combined, first in eastern Sendai, to create larger ones, making it possible to implement efficient farming practices through the operation of large agricultural machines.

Inauguration of new drainage pumping stations

Drainage pumping stations at four sites (Takasago-Nambu, Ohori, Nigobori and Fujitsuka) were temporarily restored in 2012 and new pumping stations are currently being built with a drainage capacity twice their former capacity to cope with ground subsidence caused by the 2011 earthquake.

Construction of Rokugo Rice Center (a facility for comprehensive processing of rice from drying, dehusking, and polishing to packing)

With support from the Comprehensive Support Program for Agricultural Restoration in Disaster-Stricken Areas, the city constructed the Rokugo Rice Center, a large facility for drying, dehusking, polishing and packing of rice, in the Rokugo district. In 2015, the center will begin operations.



Ido district in Wakabayashi Ward



Newly rebuilt Ohori Drainage Pumping Station



Rokugo Rice Center



“We have overcome life’s challenges to rise up again!”

The current state of tsunami-stricken areas

Four years have passed since the Great East Japan Earthquake. And now, we are enjoying the pleasures of farming here again and anticipating new approaches to agricultural management.



Farmlands expand in eastern Sendai

Eastern Sendai farmland producing food locally for local consumption

The eastern Sendai area consisting of Takasago, Shichigo, Rokugo and Shiromaru is a large agricultural zone where farm products are produced locally for local consumption by residents of the Sendai metropolitan area.

The area was seriously damaged by the disaster, but agricultural production is now recovering strongly. Difficulties were overcome by using a variety of methods and resources, and through human and organizational connections.



New trends in agriculture include entry of the younger generation into farming, expanding the market through collaboration with city residents, and increasingly sophisticated forms of agriculture through development of new agricultural and processed food products.



Farmers in eastern Sendai are actively carrying out urban agriculture practices to supply locally-produced, tasty rice, delicious vegetables and beautiful flowers to residents of Sendai.



Progress of recovery in each district by sales of agricultural products (per fiscal year)

■ Processed products, etc. ■ Vegetables, flowers, and plants ■ Rice, wheat, and soybeans

Source: JA Sendai

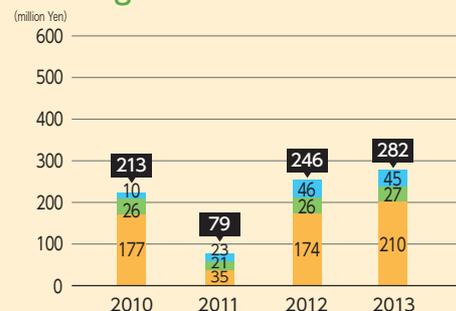
Rokugo district



Shichigo district



Takasago district



Creation of next-generation agriculture Rokugo district

In the pre-disaster Rokugo district, farmers produced root vegetables such as Japanese radish and leafy vegetables such as Japanese mustard spinach. They even produced lettuce that was ranked first for production in Miyagi Prefecture.

Farmers have been striving to cultivate new farm products and create a stable environment for agricultural management. In addition, they have been providing guidance to new farmers on cultivating lettuce.

They are striving to establish a system of next-generation agriculture through various methods that include cultivating a new variety of mini tomato and joint-use of farming equipment and facilities.



Agricultural Producers' Cooperative Corporation "Ido Producers' Association"



Imazumi Kibo Producers' Association



Agricultural Producers' Cooperative Corporation "Ido Producers' Association"



The farmland on the riverbed in Nippe

Development of agriculture for revitalization of the community Shichigo district

In the pre-disaster Shichigo district, farmers produced rice mainly, in addition to welsch onions and Japanese mustard spinach.

Farmers began to grow mini tomatoes on a trial basis and were actively involved in implementing the farmland accumulation policy. In December 2014, farmers in Arahama, an area seriously damaged by the tsunami, established an agricultural producers' cooperative corporation. They began to operate their corporation on farmland that was undergoing consolidation. They are also actively pursuing measures to resume farming and rebuilding the community in collaboration with volunteers.



Arahama Community-based Group Farming Association



Arahama Community-based Group Farming Association



Gathering to thank people who supported recovery from the disaster



Volunteers selling vegetables from a mobile produce stall

Seeking to realize successful agricultural production Takasago district

In the pre-disaster Takasago district, farmers produced mainly rice and soybeans due to the government's rice-crop diversion policy in the flatlands at the mouth of the Nanakitagawa River, and shipped them to agricultural cooperatives and markets.

At present, some operators are trying to vitalize the area by implementing measures for a more profitable agriculture. They include diversification of agriculture by integrating it with food-processing, distribution and sales, or conducting large-scale farming. In addition, a JA Sendai farmers market, the "Tanabatake Takasago Store" was opened in October 2011, and has been providing farmers with an incentive for agriculture management while helping to vitalize the area.



Michisaki Co., Inc.



Okada Producers' Association



JA Sendai Farmer's Market "Tanabatake" Takasago Store

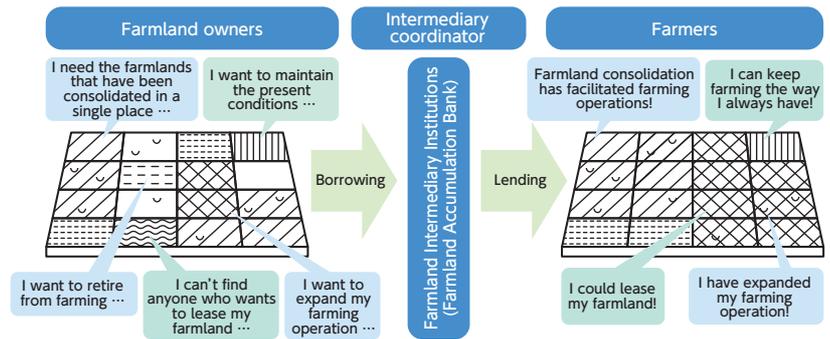


Miso (soybean paste) produced by the Okada Producers' Association

Measures to support the future of agriculture

1 Promoting the “accumulation of farmlands”

The city is promoting farmland accumulation by coordinating farmland exchanges and farmland leases so that farm operators can cultivate farmlands responsibly and effectively while playing a central role in the area. In addition, intermediary institutions have been established to manage farmlands by facilitating the lending and borrowing of farmland.



2 Promoting incorporation of community farming organizations

The city promotes incorporation of farming groups, such as community-based farm cooperatives, to achieve a more stable agricultural management through various support measures so that farmers can strengthen their organizational operations, reorganize management and introduce horticultural production.



3 Collaboration between agriculture, commerce and industry

The city supports farmers in their efforts to collaborate with commerce and industry and promotes local industries where agriculture plays a central role. One of the measures taken includes developing high-value-added commodities and services using their respective resources.



4 Diversifying agriculture through integration with related industries such as food processing, distribution and sales

The city promotes diversification and sophistication of agriculture through support for establishment of food processing, distribution and sales businesses, involvement with new product development through collaboration with secondary and tertiary industries, as well as fostering young farmers who will play a major role in agriculture in the future.



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