Future-oriented Agriculture—Strawberry Plant Factory Based on Regional Collaboration

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Abstract

As a *social information and communication technology (ICT) pioneer*, NTT WEST is aiming to create *smart communities* to solve problems facing local communities and strengthen ties between individuals and society. Specifically, we are working on "Smart10x" initiatives to solve problems faced by local communities in ten fields by using the expertise and resources that exist in the community as well as those of NTT WEST and its group companies. This article introduces the "Collaboration Agreement on the Promotion of Agriculture and Regional Revitalization Utilizing ICT, Starting from Sakawa Strawberries," which was announced in April 2021, with regard to our initiatives for plant factories as future-oriented agriculture that is being promoted in the primary-industry sector.

Keywords: food and agriculture business, plant factory, regional revitalization

1. Background of the collaboration agreement

On April 24, 2021, the Sakawa Branch Strawberry Division of Japan Agricultural Cooperatives (JA) Kochi Prefecture (Sakawa Strawberry Division, hereafter), NTT WEST, the town of Sakawa, and Kochi Prefecture concluded a collaboration agreement to promote agricultural development and regional revitalization, particularly by leveraging the strawberry-cultivation technology of Sakawa Strawberry Division and information and communication technology (ICT) of NTT WEST and its group companies (NTT WEST Group, hereafter), as a way to explore the possibilities of "plant-based town development" advocated by the town of Sakawa.

In the Sakawa Strawberry Division, farmers are aging and their number is decreasing. Accordingly, while working on ways that will allow them to pass on skills, they aim to increase the number of new farmers and pursue sustainable agriculture by creating an environment that makes it easy for individuals to take up farming.

To become a *social ICT pioneer*, NTT WEST is taking the initiative in solving various problems brought about by changes in the environment surrounding society by using the power of ICT and collaborating with local communities (**Fig. 1**). As one of our initiatives, we had been considering the strawberry plant factory business as a means to solve social problems in the agricultural sector. Accordingly, we thought it was a good idea to grow Sakawa's delicious strawberries, which are highly evaluated by distributors, in a plant factory. Therefore, we consulted with the Sakawa Strawberry Division, leading to this collaboration.

The town of Sakawa is aiming to attract new farmers to support the Sakawa Strawberry Division and create a town in which children can learn about the
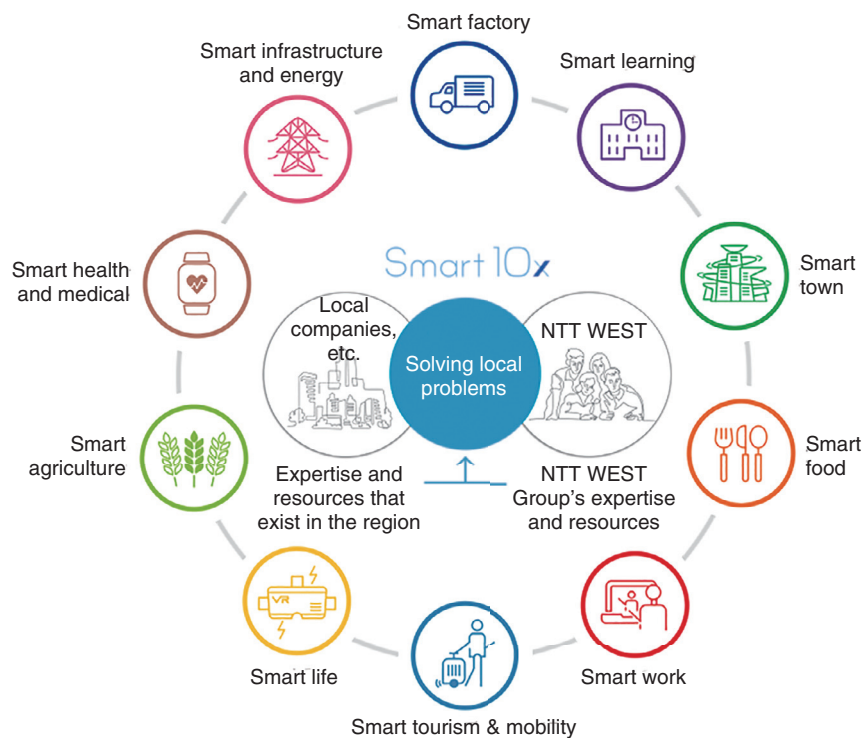
Fig. 1.   NTT WEST "Smart10x" initiatives.

industries of Sakawa by using ICT in a manner that they can nurture their interests in such industries. Moreover, they want to make effective use of ICT in the "Sakawa Town, People, Work Creation Comprehensive Strategy" aimed at measures for addressing population decline, regional revitalization, and establishment of a virtuous cycle.

Against this background, we decided to close a collaboration agreement with the aim of contributing to the promotion of agriculture and plant-based town development by using ICT in the production of Sakawa strawberries. Targeting new agriculture and plant-based town development, NTT WEST will also explore ways to promote agriculture through digital transformation by promoting the use of ICT in agricultural fields and collaboration with plant factories in the Kansai (west Japan) region through regional cooperation. Kochi Prefecture is participating in this agreement to support the collaborative efforts of the Sakawa Strawberry Division, NTT WEST, and the town of Sakawa (**Figs. 2** and **3**).

2.   Details of the collaboration

2.1   Specific actions to be taken
(1) Increase the number of new farmers of Sakawa strawberries
  • Dissemination of information on Sakawa strawberries and the town of Sakawa through strawberry plant factories
  • Production of strawberries using ICT
(2) Promote plant-based town development
  • Consideration of the use of strawberries produced at plant factories for sale at roadside stations
  • Study of ICT utilization to maximize the attractiveness and profit of roadside stations
  • Expanding direct sales and revitalizing local communities by using closed-type plant-factory technology (**Photos 1** and **2**)

2.2   Agreement period
From April 24, 2021 to March 31, 2022.

2.3   Role of each party
(1) Sakawa Strawberry Division
  • Various activities to increase the number of new

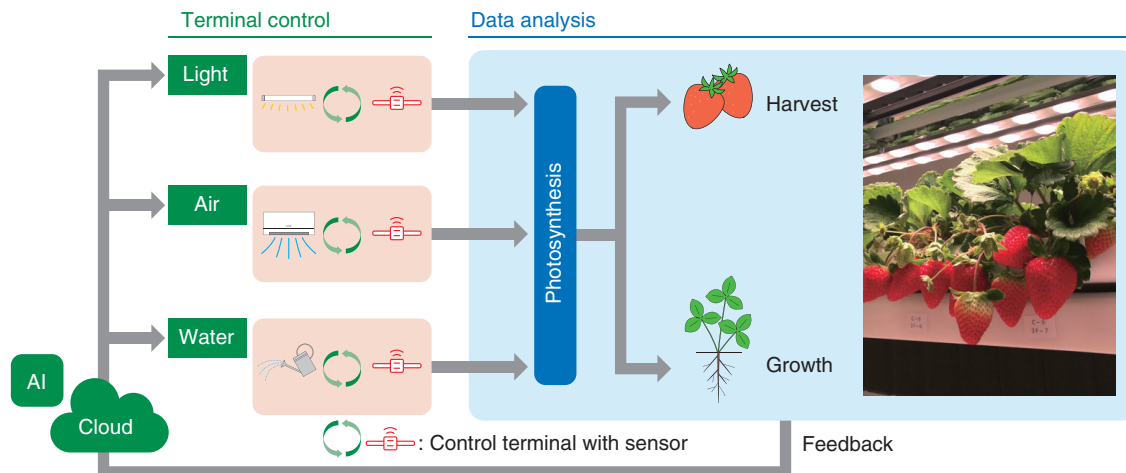Fig. 2. Background and motivation for collaboration with the town of Sakawa.

Fig. 3. Cultivation technology used in a strawberry plant factory.

farmers
- Pursuit of strawberry-cultivation technologies
- Provision of technological expertise on cultivation of Sakawa strawberries

(2) NTT WEST Group
- ICT-based support to increase the number of new farmers
- Regional revitalization through the promotion of strawberries produced in plant factories
- Studying the development of strawberry-plant-

factory business in Sakawa

(3) The town of Sakawa
- Promotion and dissemination of plant-based town development
- Dissemination of the Sakawa strawberry brand
- Study of agricultural promotion and regional revitalization using plant factories

(4) Kochi Prefecture
- Support for initiatives from production to sales in line with the intentions of the producing

Photo 1. Strawberry cultivation field in Sakawa, Kochi Prefecture.

region

3. Future developments

Under this collaboration agreement as a starting point, we will promote regional revitalization through cooperation in various fields, including the use of ICT, with a focus on Sakawa strawberries.

Photo 2. Strawberry plant factory operated by the NTT WEST Group.

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