

The Power of ICT

[CASE2]

Agriculture



Achieve “Robust Agriculture” by ICT that Responds Flexibly to Changes in the Natural Environment

—Accumulating Cultivation Data and Making Production Technology Visible through the “Akisai” Food and Agriculture Cloud

Challenge

Growing Concerns over the Impact of Rising Temperatures on Crops

Over long eras, agriculture has advanced in step with the natural conditions and climates of local regions. With the rise in global average atmospheric temperature in recent years, however, negative impacts such as immature grain, discoloring, growth defects in dehiscent fruit, and insect damage have already begun to appear.* If warming continues to advance, there is a possibility that areas suitable for cultivation will change and the crops that had been grown there will permanently experience poor harvests. This would create problems that cannot be addressed by the experience and expertise of the past.

The field of agriculture must accurately and in real time grasp changes and trends in the cultivation environment, in accordance with hot summers, warm winters, low rainfall, heavy snow, and other perennial changes in temperatures and precipitation volume, and must carry out optimal agricultural work for the conditions.

* FY 2012 Survey Report on the Impact of Global Warming (Ministry of Agriculture, Forestry and Fisheries)

Solutions

Visualizing Farm Environments and Making Tacit Knowledge Explicit

In the cultivation of new crops under global warming, ICT contributes to lessening the risks of insufficient production expertise. Weather sensing devices on farms measure, aggregate, and analyze data including temperature, humidity, and insolation, enabling visualization of the farm environment. In addition to basing work decisions on their own senses, producers are able to use local weather data to optimize the content and timing of work and to engage in highly sustainable farm work and management.

By using work plans, work periods, types of herbicides and fertilizers, and other data aggregated at farmlands with specific cultivation experience, farmers are able to reduce risks.

To make the farming environment and production processes more visible through ICT, Fujitsu has offered the Akisai Food and Agriculture Cloud since 2012. The system's many users include agricultural corporations such as Japan Agricultural Cooperatives (JA).

Benefits

Contributing to the Resolution of Diverse Issues on Farms

The Akisai Farm was established in Numazu Plant to put the Akisai Cloud into practice. There, Fujitsu uses sensors and cloud technology to measure and control the environment, and undertakes year-round greenhouse cultivation of a vegetable (senjusai) that is generally cultivated only in fields in summer.

Moreover, at the Aizuwakamatsu Plant, Fujitsu has built a fully enclosed plant factory using the Akisai Cloud. Through the cultivation and sale of low-potassium chemical-free leaf lettuce, Fujitsu is contributing to the recovery from the Great East Japan Earthquake and to the revitalization of local industry.

In this way, ICT enables stable and efficient farm work not exposed to a natural environment and contributes to the strengthening of agricultural production and management. By aggregating, analyzing, and using diverse data worldwide, Fujitsu is working to resolve the global-scale issue of food shortages. We will continue to support a future for secure, safe, and abundant food through ICT.