HEALING THE SOIL

Checking the harvest in 2015

Following the nuclear reactor accident at Fukushima Daiichi Nuclear Power Plant, agricultural products from Fukushima suffered a devastating blow to their reputation. How safe are these products now?

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SINCE the nuclear reactor accident in 2011, Fukushima Prefecture has made daily strides toward reconstruction. At the same time, Ryota Koyama, a professor at Fukushima University's Faculty of Economics and Business Administration, describes the frustration people here feel. "The safely of agricultural products in Fukushima is increasing, and none of the rice slated for general distribution in 2015 exceeded the thresholds for radiation [100 becquerels per kilogram for standard food products]," he states. "However, this is not a newsworthy, headline-grabbing item, so the image of Fukushima as 'contaminated' persists."

How is it that in just five years readings on cesium in rice from Fukushima no longer exceed the thresholds for radiation? Following the reactor accident, radioactive material released into the atmosphere reached the ground through rain and snowfall, and leafy plants harvested in the spring of 2011 and rice harvested in that first year did have radiation that greatly exceeded standard levels. However, the cesium bonded with large mica clay particles found widely in Fukushima's soil, blocking plants from absorbing cesium through their roots. Of the cesium that remained in the topsoil, cesium-134, which has a half-life of around two years, has decayed by a theoretical 25 percent over these five years, and cesium-137, which has a half-life of thirty years, also diminished.

"Fukushima is mountainous and many crops are grown in irrigated farmland like paddies," Koyama reports. "Chernobyl's land is flat, and the crops there are grown in dry fields. People do not realize that key geographic factors like the abundance of water and the topography, as well as the type of radiation—plutonium was not dispersed at Fukushima—the type of soil, and the way crops were inspected and quarantined varied drastically between these two events."

Koyama emphasizes the importance of collecting key data immediately after the accident. "The foremost priority is on creating a detailed pollution map to assist in rebuilding the agricultural sector," he notes. Along with local residents, farmers, Japan Agricultural

Preparing samples of rice for inspection

Deciding which fields to plant in at an April 2012 gathering

Cooperatives (JA), volunteers and students, he carried out repeated and detailed radiation screenings of all orchards and paddies within Fukushima City. Farmers dispersed potassium fertilizer and other additives across the fields to curb and absorb cesium, and high-pressure washers were used to decontaminate the trees.

"For regions with high levels of contamination, planting was prohibited and agricultural activity halted," Koyama says. "There are other regions where farmers voluntarily stopped planting. By accurately checking the state of the soil and launching initiatives to restore it, planting has finally restarted in a safe fashion."

All kinds of agricultural, forestry and fishery products in Fukushima Prefecture intended for final sale are inspected carefully. A partnership between the seventy thousand rice producers here and affiliated organizations has completely inspected the full volume of ten million bags of rice. JA also checks all kinds of fruit trees and vegetables on a per-farm basis. All beef cattle are inspected and checked for safety on delivery as well.

"In 2012, only seventy-one bags of rice exceeded the allowable threshold," Koyama says. "That's 0.0007 percent of all rice produced. In 2014, there were two bags, or 0.00002 percent. Both of them were not intended for consumption, but were used for research purposes. And in 2015, we reached zero bags."

The results of inspections are published on the websites of the JA and the prefecture, so consumers can check the safety data at any time. Improving awareness remains a challenge, however—only 20 percent of domestic consumers know these facts.

"There are documents detailing the investigations of the nuclear accident," Koyama says. "But the lack of a comprehensive public report detailing the state of radiation contamination heightens consumer fears." He indicates that the key is not to reach a point where consumers feel that things are finally safe, but to publicize clear, evidentiary-based data.

In terms of rebuilding Fukushima's agricultural industry, Koyama proposes the following: "Make safety a brand. For example, organic and low-pesticide products and the cultivation of products with low allergens have gained ground. Similarly, the real road to reconstruction lies in new projects geared toward new values not provided prior to the accident." This carefully data-driven academic approach out Fukushima is playing a major role in rebuilding the region.

Professor Ryota Koyama has been a strong advocate for Fukushima's agricultural community