

Technological travel insurance for Japan's premium produce

BLOCKCHAIN THAT CUTS OUT FAKES AND SENSORS THAT ENSURE FRESHNESS will give new confidence to the producers and consumers of Japan's sought-after food exports.

In Hong Kong, Japanese strawberries can sell for as much as a dollar per piece. "In Asia, there's a certain value associated with produce from Japan," says Shigenobu Yoshida, a project manager at Mitsubishi Chemical collaborating with the National Agriculture and Food Research Organization (NARO). The masterfully-crafted flavours are one motivator for buying Japanese produce, but its reputation for safety and freshness is also compelling for affluent Asian consumers. "In places where the levels of chemicals in produce may flow regulations, consumers are extremely conscious about their choices."

With produce falsely labelled as Japanese flooding the market, however, consumers are vulnerable. To tackle this, Yoshida is piloting a blockchain-based system that allows consumers to check the authenticity of produce on their smartphones.

Blockchain authenticates Blockchain is a time-stamped chain of records that are stored across a network of computers, rendering it nearly impossible for any one person to interfere with the data. With Yoshida's

system, consumers will be able to use tags to see information about the producer, how and when the produce travelled from Japan, and the conditions under which it was handled during transport.

For this to happen, data is recorded on the blockchain at multiple checkpoints; the first is with domestic suppliers, who record information about the producer and the production lot. During transport and storage, sensors automatically input an additional layer of data on temperature and humidity. Location is also recorded at checkpoints, such as airports.

PRODUCE FALSELY LABELLED AS JAPANESE IS FLOODING THE MARKET.

According to a preliminary survey conducted in Dalian, China, consumers were willing to pay at least 1.5 times the market price for authentic imports. "In China, lots of hormones may be used on vegetables to increase size. Most survey respondents answered that they care



Assuring the condition of fruits, such as melons, on arrival will open up markets.

about chemicals remaining on produce when they shop," says Yoshida.

Sensors track freshness Atsushi Shinjo, a professor at Keio University, notes that some sellers had stopped exporting altogether as quality is hard to guarantee. He raises unpasteurized sake as an example. "The demand is definitely there. But unpasteurized sake perishes very easily, and sellers are unwilling to export to faraway lands if they have no way of knowing that it will remain fresh," he explains. "The data we get from the sensors during transport is giving us ideas for how this could become possible.

In particular, it's shedding light on aspects of handling that could be improved."

Like Yoshida, Shinjo is one of the researchers collaborating with NARO to capture demand from the growing affluent population in Asia, seen as a game-changer for the future of Japan's exports. "The affluent population in Asia continues to grow and is projected to rise to about 800 million by 2025," he explains. "Everyone loves good food, and they are happy to pay for it if they can afford to."

Tapping into this demand is a key strategy in achieving Japan's export goals for 2030; the Ministry of Agriculture, Forestry, and Fisheries

has made an ambitious commitment to increase the export value of agricultural products five-fold, or 5 trillion yen, in acknowledgement of a dwindling population and shrinking domestic market.

Plans are underway to develop a system of recognizing products that are handled with extensive care, through a certification. Shinjo calls it the 'Japan brand', explaining that it enhances the value of the country's produce. "Japan is an isolated island in Asia and doesn't have a geographic advantage when it comes to trade. To be competitive, there has to be additional value – and selling quality

through the Japan brand will be the way forward," he says. "It's also more profitable for Japanese producers, since the certification will allow them to sell products at a higher price."

Understanding demand In 2017, Shinjo developed WAGRI, a software platform that facilitates data sharing to boost efficiency and profitability across the entire agricultural industry, also lowering the bar for newcomers. Using WAGRI as a base, Shinjo is developing the Smart Food Chain Platform, a hub that connects data on production with that of distribution sites and retailer's shelves.



Sensors can track the condition of exports at each stage of the journey.



Japan's strawberries are prized for their sweetness and low-chemical cultivation.

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The up-to-date information from the platform helps match supply and demand; today, 10–30% of produce is thought to go to waste, in part due to oversupply. "Producers sometimes overestimate the demand. If they find out in advance that the produce might be wasted, they can look into alternative sales routes to make the most use of their produce," explains Shinjo. "It will also be easier to do sales. To profit from a discount, there needs to be an abundance of the food item – suppliers can sell surplus to stores that they normally deal with. It's a win-win on both ends."

With a series of pilots underway, the Smart Food

Chain Platform is on track for nationwide implementation by 2023.

The Technologies for Smart Bio-industry and Agriculture programme is supported by the Cabinet Office of the Government of Japan as part of the Cross-ministerial Strategic Innovation Promotion Program (SIP). Funding agency: Bio-oriented Technology Research Advancement Institution (BRAIN). ■



Cross-ministerial Strategic Innovation Promotion Program

Cabinet Office, Government of Japan
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