

Sustainably shaping the future of food

Minimalist values engrained in Japanese cuisine paves the way for **SUSTAINABLE EATING**

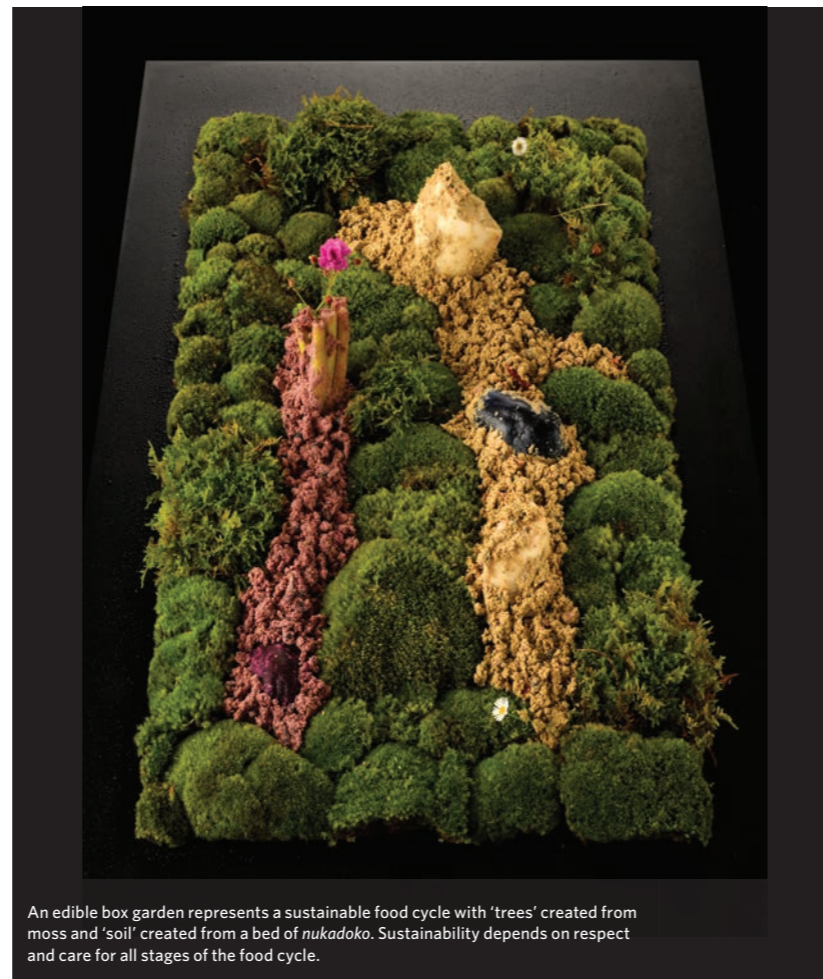
When Buddhism spread through Japan more than a millennium ago, people adopted a vegetarian lifestyle. In the thirteenth century, under the influence of Zen Buddhism, the tea ceremony (cha no yu) developed. It positioned mild cuisines as dignified and superior to dishes that use a lot of rich ingredients. This became the basis of today's Kyoto cuisines. Now, the tastemakers of Japanese cuisine are reimagining this style of flavouring, which has also attracted international attention.

"In the aftermath of World War 2, Japanese people turned to oily foods with high calories, and moved away from delicate flavouring," explains Toru Fushiki, professor at Ryukoku University. "Now, they are rediscovering the breadth of

flavours that various broths bring to the table. Thanks to this trend, mainstream broth ingredients like kelp, as well as atypical ones like flying fish, are becoming a phenomenon. Chefs from USA and France are also catching on: each year an increasing number of chefs come to Japan to train in using broth."

THE MOST VALUABLE ASPECT OF THIS PARTNERSHIP WAS AN EMPIRICAL WAY OF THINKING

A 21st century problem, however, is weighing on this trend. A changing climate means a decreasing supply of kelp in Hokkaido, a region in northern Japan known for



An edible box garden represents a sustainable food cycle with 'trees' created from moss and 'soil' created from a bed of *nukadoko*. Sustainability depends on respect and care for all stages of the food cycle.

kelp production. Industry professionals are already bracing for change, and a chef from the Japan Culinary Association, an organization comprised of Kyoto's top chefs, is seeking a vegetable-based substitute for kelp broth.

JAPANESE CUISINE AS A MODEL FOR SUSTAINABILITY

Since 2016, Ryukoku University and the Japan Culinary Association have partnered to contemplate ways to use science to advance Japanese cuisine. The partnership programme addresses specific research questions each year: past topics include the defining

characteristic of Japanese food, and the precise definition of elegance in cuisine.

The theme for 2020 is to make Japanese cuisine a model for food sustainability. "Because Kyoto cuisine has roots in Buddhism and the tea ceremony, there's an underlying philosophy that eating is not about sacrificing the life of another living thing and flavouring aims to bring out the best in the ingredient and avoid extravagance," says Fushiki. "Japanese cuisine is poised to lead the culinary world on the UN's Sustainable Development Goals (SDG)."

In a step towards minimizing



Blending tradition with modern scientific methods.



The delicate balance of ingredients reflects the sophistication of Japanese cuisine.



New ways: the chefs used yuzu to mimic the sharpness of pepper.



Using vegetables rather than animal products, flavor is enriched with a broth of maitake mushroom.



Fushiki from Ryukoku University is partnering with the Japanese Society for Innovative Cuisine.



Japanese cuisine is characterized by contrasting textures.

the environmental footprint of food, programme members have discussed the benefits of using more farmed seafood in high-end restaurants. "There's a preconception among Japanese consumers that farmed fish are inferior to ones caught in the wild," says Fushiki. He cites an example of a prestigious restaurant with precise requirements on sea bream used in their dishes, insisting that only females from the Akashi sea area that weigh 2.7 kg are acceptable. Such precision is not reproducible for the succession of culture.

Farming, however, allows producers to control

environmental factors that affect fish size or flavour. "Nature isn't always friendly, so a wild caught fish, depending on what it ate, may have a distinct odour or have little fat," says Fushiki. "But with farmed sea bream, it's possible to adjust the flavour by being deliberate about how they are fed. Using fish grown under responsible farming plans would also considerably reduce stress on the environment."

Chefs have had success with creating satisfying meat alternatives, which also reduces food's environmental footprint. "In Japan, soybean

comes in many forms, from the freeze-dried koya tofu to the thin protein sheets of yuba," says Yoshihiro Murata, director of the Japan Culinary Association. "When we mixed several types of tofu products with jelly-like foods made from root vegetables and seaweed, we got a chewy, wholesome alternative. We used this to make a vegetarian version of hirekatsu, deep-fried pork cutlets typical of home-cooking."

The members will showcase their final conclusions about the role of Japanese cuisine on SDGs in January 2021, in a public symposium.

AN EMPIRICAL TAKE ON CUISINE

In the early days of the programme, both parties had envisioned a partnership that explores molecular gastronomy, a method of cooking using tools associated with science such as liquid nitrogen and centrifuges. "It turned out, however, that the most valuable aspect of this partnership was an empirical way of thinking," says Murata. "Chefs know what is right, based on experience and intuition, but by understanding why it is right, they can apply the findings to new dishes."

Chefs seeking greater understanding are undertaking research in the PhD programme at Ryukoku University's Graduate School of Agriculture. One student—a chef and owner of a three Michelin Star restaurant in Kyoto—investigated why adding thin fried tofu uplifts the palatability of nimono, a simmered vegetable dish. While the practice is common wisdom among Japanese households and restaurants, the project shed light on the precise factors contributing to the palatability of foods.

Leaning on science and empiricism, Fushiki and chefs continue their challenge on next-generation cuisine. "Cuisine isn't just about taste anymore. With rising awareness of animal welfare and sustainability, top tier restaurants are noticing their guests are conscious of how the food was sourced," say Fushiki and Murata. "And there's no cuisine better than Japanese food to lead that movement." ■



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