# food forum

Kikkoman's quarterly intercultural forum for the exchange of ideas on food



## The Japanese table Rice Origins and Varieties

by Yo-Ichiro Sato



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t is unknown when humans began to consume rice, but its cultivation is believed to have originated in the region of China's Yangtze River basin, some 7,000 to 8,000 years ago. Prior to its domestication, rice consisted of the grains of grasses which, today, we refer to as wild rice. The seeds of wild rice have a black hull with a spine-like projection called the awn. Inside the hull is a bran-covered grain that we call "brown rice"; in wild rice this color is somewhat reddish brown in appearance. Cultivated rice was eventually disseminated throughout Southeast Asia, and around 3,000 years ago, it came to be cultivated in Japan and other regions of southern Eurasia. Rice was grown in Europe by around the early Christian era, and is thought to have reached the Americas by the seventeenth or eighteenth century.

Rice strains

In Asia, most think of rice (*Oryza sativa*) as being divided into two categories: indica and japonica. Indica and japonica are not differentiations that are the result of cultivation; rather, species of wild rice originally

included both. This general species classification by variety is perhaps less known in Europe and the Americas, where rice is more commonly categorized by characteristics of aroma in fragrant rices such as basmati or jasmine rice, or by well-known names such as Carnaroli rice. Indica rice, which accounts for 80 percent of world rice production today, is not sticky, whereas the texture of japonica rice is very much so. Another common assumption in Asia is that indica is "long-grained" and japonica is "short-grained." This so-called identification based on the shape of the rice grain, long considered "common knowledge," has been found to be inaccurate; for example, there is a long-grained japonica cultivar grown in the Mississippi valley in the US.

### **Cultivation and production**

The category of rice first cultivated in the Yangtze basin appears to have been japonica. The origins of indica remain unknown, but it is thought to have developed somewhat later, in tropical Asia, where food resources in early times may have been plentiful enough to support a certain population without crop cultivation. Figure 1 illustrates the regions where japonica and indica are cultivated around the world. Cultivation of japonica extends to Europe and the USa much broader area than indica. There are two varieties of japonica



From left: Unpolished grain and grain in hull of japonica *Koshihikari* rice cultivar; unpolished grain and grain in hull of wild rice.

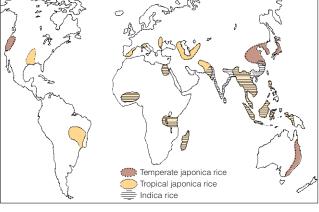


Figure 1: Cultivation of japonica and indica rice (1996)

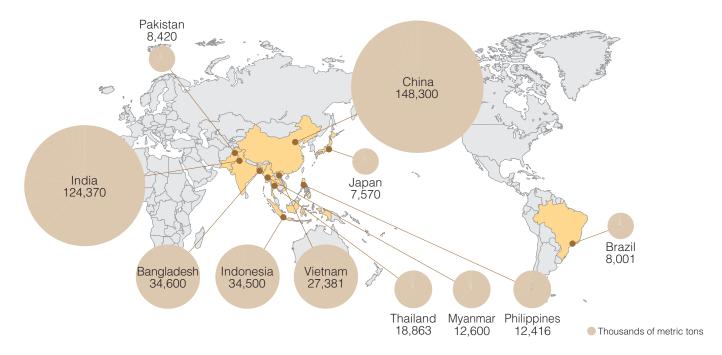


Figure 2: Global Rice Production
Source: 2020/21 milled production; Production, Supply and Distribution, United States Department of Agriculture (USDA) as of 12/09/2022

rice, temperate and tropical. Distribution of the former is limited to Japan, the Korean peninsula, northern China, the US west coast and Australian east coast. From the latter half of the twentieth century, hybrid species of both indica and japonica have been developed under various international organizations, and have since spread rapidly. Rice is third after corn and wheat among types of grain produced worldwide, and Figure 2 shows the volume of global rice production: approximately 500 million tons of rice are grown, primarily in China and India. Annual rice consumption is over 200 kilograms per capita in Myanmar, Vietnam and Bangladesh-more than four times that of Japan (around 50 kilograms).

#### Glutinous and non-glutinous

Rice is also categorized as glutinous and non-glutinous.

Non-glutinous rice, Japan's staple food, contains two types of starch, amylose and amylopectin, and appears translucent. Shiny white glutinous rice, called "sticky rice," is composed only of amylopectin, which, owing to its particular molecular structure, contributes

to its sticky texture and opaque appearance. (Glutinous rice is used to make *mochi* in Japan.) In glutinous rice, a mutation took place in the DNA sequence of the gene that synthesizes amylose, causing that process to be blocked; it is unknown where or when this mutation occurred, but it is an astonishing fact that, sometime during the long history of cultivation, a single mutation generated an entire culture of glutinous rice consumption: it is the staple in some regions, such as in northern Thailand and Laos, for example, where people consume steamed glutinous rice for three meals a day, using their fingers. The indica variety also includes glutinous types, so it is a fallacy to assume that all indica rice is dry and flaky, eaten with a spoon.

### "Colorful" rice

As already mentioned, unpolished wild rice appears reddish brown; cultivated rice with this characteristic is known as "red rice." Most unpolished grains of cultivated rice are not red, suggesting that pigment has been lost through mutation. There are both glutinous and non-glutinous varieties of red rice. The interior of some non-glutinous red rice

appears red when the unpolished grain is sliced in cross-section, leading to the notion that the red color is consistent throughout; however, the reason for this is owing to the translucence of the grain, which allows the surface color to show through. Another variety called "purple-black rice" is a mixture of anthocyanin pigments and chlorophyll.

From the grains of ancient wild grasses, many varieties of rice have evolved over thousands of years, mainly through mutations and various other factors, including the intentional perpetuation of such mutations, and natural cross-breeding. Today, this globally consumed grain sustains millions around the world.

On the cover Nanohana, featured in Spirit of the Seasons, page 5; and biryani made with basmati rice.

#### Author's profile

Yo-Ichiro Sato was born in 1952 in Wakayama Prefecture. He holds a PhD in agriculture from Kyoto University. He has been director of the Museum of Natural and Environmental History, Shizuoka since 2021, and has served as distinguished professor at Kyoto Prefectural University since 2019. His many publications include *Shoku no Jinruishi* (Human history of food, 2016), and *Kome no Nihonshi* (Rice in Japanese history, 2020).

### Okosama Lunch

Japan's so-called okosama (children's) lunch is the term used for a special child's meal served at many family-friendly restaurants. The one-plate dish comprises an array of favorite kids' foods in child-sized servings, and is as entertaining as it is tempting: little ones can feast on yoshoku Western-style foods like hamburger steak, French fries or kara-age fried chicken, all served together on a single cheerful plate or in a compartmented, toylike dish shaped like a train or plane. These small, beautifully arranged portions bear a passing resemblance to the traditional Japanese bento lunch box, which may have inspired its creation.

The first appearance of the okosama lunch was likely in 1930, when the restaurant at the Nihombashi Mitsukoshi Main Store in Tokyo added okosama yoshoku (kids' Western-style meal) to its menu. The worldwide economic depression was taking its toll on Japan at the time, and restaurant manager Taro Ando

concocted an amusing oneplate meal to bring smiles to young faces. Among his assorted tidbits were ketchup-fried rice, spaghetti, croquettes, ham, jam and egg sandwiches, and sugar bonbons. At the time, these Western-inspired foods were not commonly made at home, and so were considered a special treat. He presented this food in imaginative ways, most memorably by shaping ketchupfried rice into a miniature version of Mt. Fuji, crowned by a tiny flag on its peak—a final flourish that endures today as a beloved symbol of the okosama lunch. Ando's lighthearted creations inspired other restaurants, and over the years, this iconic meal has become standard on many Japanese menus.

A meal that brings smiles to young faces



A colorized ca.1930 photo of okosama yoshoku served at Nihombashi Mitsukoshi Main Store

Although called "lunch," young diners are welcome to order up an okosama lunch at any time. Typically, it is only available for young children, but in a nod to those pursuing the nostalgic flavors of childhood, some restaurants now offer okosama lunch for adults: the same one-plate meal, only with larger portions. Thanks to its longstanding appeal, the okosama lunch is little changed, and remains one of the most popular—and memorable—dining experiences, for both young and old.



### Miso Soup

This year, Fundamentals 101 focuses on Japanese soups. We start with miso soup, a quintessential dish served with rice to make the Japanese meal complete.

Miso has been used for soup in Japan for centuries. Miso is a fermented paste of soybeans, salt and koji fermentation starter. Three kinds of koji—rice (kome), barley (mugi) and soybean (mame) are used to make miso, and the koji used determines the type of miso, as shown below. Miso types may be used individually or mixed, depending

on personal preference. Miso is also categorized by color, which turns darker with aging. Most popular is red (aka) miso; then there is yellow (tankoshoku) miso, and white (shiro) miso. Miso is produced throughout Japan, and can reflect regional characteristics, such as climate and culture, through its varying flavors and colors.

Kome miso (with rice koji)







From left: Sendai miso (red), Shinshu miso (yellow), Saikyo miso (white)

Mugi miso (with barley koji) Mame miso (with soybean koji)







Hatcho miso

Miso soup is easy to make. It may include one or several ingredients, such as daikon, mushrooms, tofu, wakame seaweed or shellfish. Here is one example:

- 1. Prepare dashi stock. Peel and cut a potato into small pieces. Thinly slice onion. To remove smell and excess oil from abura-age deep-fried tofu, place in a colander and pour boiling water over it. Once cooled, gently squeeze out excess water and cut into strips.
- 2. Heat the stock, potato and onion over medium heat. When the potato is cooked, add abura-age. Bring to a boil then reduce heat to low.
- 3. Dissolve miso in the soup using a ladle and chopsticks (see photo), remove pot from heat. To preserve miso flavor, do not allow to boil again. Garnish with chopped green onion to serve.





Miso soup with potato, onion and abura-age, garnished with green onion

### Nanohana



Nanohana ohitashi

### Nanohana, pictured on the cover,

is a tasty harbinger of spring in Japan. It is so evocative of the season that references to this flowering plant are commonly used in haiku, to evoke the sensibility of spring. Sometimes referred to as canola or rapeseed (Brassica napus), its small, bright yellow edible flowers are in season during early spring, from January through March. Nanohana is thought to be native to the Mediterranean, and was introduced to Japan in the eighth century. Most tender before blossoming, it is recommended to select bunches with tightly closed, densely packed flower buds. This highly nutritious vegetable is rich in minerals, antioxidants and vitamins; much of the plant can be eaten, including stalks, leaves and buds. Its distinctive fresh "green" fragrance is underscored by a mild bitterness that turns sweet when cooked. A quintessential ingredient in spring cuisine, the versatile nanohana may be boiled and served as an ohitashi dressed with dashi and soy sauce, to which sesame or karashi Japanese mustard may be added. It is also delicious when simply sautéed.

### Tofu Steak with Miso-Harissa

#### Serves 3

155 kcal Protein 8.8 g Fat 5.6 g (per serving)

- One block medium-firm tofu, 350-400 g / 12-14 oz.
- 1 T extra virgin olive oil
- 1/2 T Kikkoman Soy Sauce

#### Miso-harissa

- 2 bell peppers, red, orange or one of each, each 140-150 g / 5 oz.
- 2-3 dried Japanese red chili peppers, or any preferred hot peppers
- 1/2 t coriander seeds
- 2 t caraway seeds
- 1/2 t cumin seeds
- 1 1/2 2 T miso
- Garlic, grated (optional)
- 1 ½ T extra virgin olive oil
- 1 T lemon juice
- Flour
- 2 t extra virgin olive oil
- 1 ½ t 2 ¼ t Kikkoman Soy Sauce

1 Wrap tofu in a paper towel and place for 30 minutes in the refrigerator to reduce water content. Cut the tofu into 6-9 cubes. Mix 1 T olive oil and 1/2 T soy sauce in a bag or container; marinate the tofu in this mixture for at least 30 minutes in the refrigerator.

2 Broil whole bell peppers until outer skin is charred black. Peel charred skin under running water, remove stems and seeds, then pat dry with paper towel. Place dried chili peppers in a bowl and pour boiling water over them and soak for 5 minutes to soften. Cut off the ends and return to the water to massage out the seeds easily. Remove from water, chop finely and set aside.

Place the coriander, caraway and cumin seeds together in a frying pan over medium heat. Gently shake the pan until the spices become fragrant, then grind fine or coarse, depending on preference, using a mill or mortar and pestle.

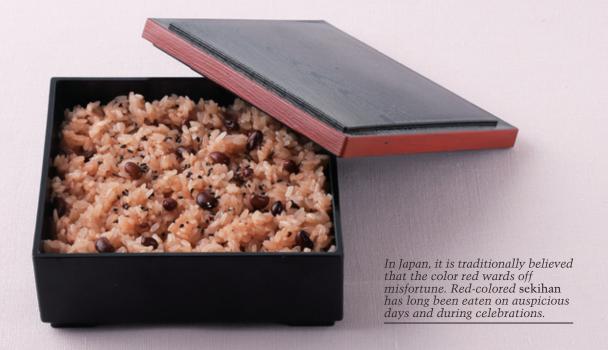
To make the miso-harissa, purée the peeled bell peppers in a food processor. Add the ground spices, chopped chili peppers, 1 ½ T of miso and the grated garlic if desired, and blend in a food processor. Taste, and if not salty enough, add in another 1/2 T miso and blend well. Pour in 1 ½ T olive oil and the lemon juice, mix again and set aside.

**5** Remove the tofu from the marinade and pat dry. Lightly coat all sides of the tofu with flour. Heat 2 t olive oil in a non-stick frying pan, add the tofu and lightly brown all sides over medium-low heat. Place on serving platter. Sprinkle 1/4 t of soy sauce over each square of tofu, and top with miso-harissa.

Recipe by Michiko Yamamoto



Miso is a versatile Japanese seasoning that complements an infinite variety of cuisines. Here it turns tofu into a spicy fusion dish.



## Sekihan Red Rice with Azuki Beans

#### Serves 6

266 kcal Protein 4.8 g Fat 1.2 g (per serving)

- 50 g / 1.7 oz. azuki red beans\*
- 1 t Kikkoman Soy Sauce
- 480 ml / 2 C glutinous rice
- Gomashio seasoning, black sesame seeds mixed with salt

1 Steps 1-3 are preparations to be done the day before. Wash the *azuki* red beans, place in a pot with enough water to cover them and bring to a boil. Reduce heat and simmer over medium-low heat for about 10 minutes. Drain the beans in a colander, discarding the boiled water. Return beans to the pot, add 720 ml / 3 C of fresh water and bring to a boil. Reduce heat to low and simmer for 15-20 minutes or until beans are soft enough to crush with fingers.

2 Drain the beans again and set aside, this time saving the liquid. Add soy sauce to this liquid. Save 5 T of it for the next day and keep with beans in the refrigerator.

**3** Wash the glutinous rice with water and drain. Soak the rice overnight in the liquid from Step 2: this adds red color to the rice. The liquid should be just enough to cover the rice; add water if needed and keep in refrigerator.

4 The next day, drain the rice and discard the soaking liquid. Prepare a steamer. Dampen a clean steaming cloth\*\*, tightly squeeze out water and lay it out across the steamer rack. Evenly distribute the glutinous rice on it and spread the beans over the rice (see photo). Wrap the cloth around the rice and beans, cover and steam over high heat.



 $\mathbf{5}$  The total steaming time will be 40 minutes. After the first 10 minutes of steaming, unfold the steaming cloth and gently mix the rice and beans using chopsticks so the rice cooks evenly. Sprinkle 3 T of the reserved liquid from Step 2 over the mixture and wrap in the cloth again. Steam for 10 minutes, gently mix again and add 1 T liquid; after another 10 minutes, repeat this process.

Spoon out the rice into a serving bowl and serve with gomashio seasoning

Authentic sekihan is typically made using sasage Japanese black-eyed peas.

Any culinary cloth such as cheesecloth, pudding cloth or muslin. Please follow hygiene guidelines for using a clean sterilized steaming cloth.

Note: This is a traditional way to make sekihan, but there are alternative methods using rice cookers.

Recipe by Kikkoman Corporation

1 C (U.S. cup) = approx. 240 ml; 1 T = 15 ml; 1 t = 5 ml



### Workshop in Japan for Concours Kikkoman Winners

KTE supports young chefs in France



The five Concours Kikkoman winners and Dr. Yukio Hattori (fifth from right), president of Hattori Nutrition College, with instructors

Since 1994, Kikkoman Trading Europe GmbH (KTE) has sponsored the Concours Kikkoman, an annual culinary competition of young chefs from throughout France, who present recipes that feature Kikkoman Soy Sauce. In Fall 2022, Kikkoman invited the five most recent winners to Japan, where, as the highlight of their rewards tour, they participated in a two-day workshop on the fundamentals of Japanese cooking, held in conjunction with Hattori Nutrition College.



Workshop Day 1: Preparing tempura and tendon

On the first day of the workshop, participants attended a lecture on different types of Japanese kitchen knives, then practiced special cutting techniques on vegetables and fish. The young chefs then learned to make dashi, and prepared miso soup and *tendon* tempura rice bowls. In this handson experience, they successfully gained an understanding of how to make proper tempura batter and check oil temperatures for deep-frying, after which they enjoyed their own delicious tempura. The second day involved lectures and practical training on preparing sushi, soba and udon noodles. Participants also learned to make *oyakodon* chicken and egg rice bowl, *katsudon* pork cutlet rice bowl,

and sukiyaki—each of which involves mastering appropriate ratios of soy sauce, mirin and other seasonings. As on the first day, the chefs prepared all dishes themselves, learning how to handle Japanese kitchen equipment.



Workshop Day 2: Making katsudon and oyakodon

In tasting their freshly made dishes, the students were able to experience first-hand the authentic and delicate flavors of Japanese cuisine, which enhances individual ingredients through umami. The enthusiastic young chefs asked many questions, eager to acquire new knowledge during this unique cultural experience. Following the workshop, the five Concours winners expressed gratitude for this opportunity, and a desire to share their new skills upon their return to France. Learning directly from Japanese culinary professionals will likely be a considerable asset for these young chefs and serve as inspiration in their future careers.

KTE continues to promote the international exchange of food culture by integrating Kikkoman Soy Sauce into food cultures in Europe. The company supports activities such as the Concours Kikkoman in order to nurture young chefs such as these, who will lead the future of global cuisines.





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