

The Quest for Quality, Healthy Foods

By Hiroshi Kakurai

Rice—an appropriate staple

Returning from a European trip, the first thing that hit me the moment I left Narita airport was how humid the air was. Japan, being in the Malaysia-Australia monsoon system, is by far the wettest country among the world's advanced nations. Below is a chart of the average annual precipitation:

London - 594 mm
Paris - 585 mm
Berlin - 556 mm
Moscow - 575 mm
Tokyo - 1,460 mm

(From Chronological Scientific Tables)

Given the climate and a geography which consists of numerous rivers, the rice paddy crop came into being as Japan's leading agriculture crop. Japan has to feed a population of 120 million on a very limited land space. The nation's land area is about 37.8 million hectares. As of 1990, the amount of land under cultivation is merely 5.3 million hectares, not more than 14% of the total land area. Of the land under cultivation, rice paddies comprise a larger proportion than plowed fields; 2.9 million hectares compared with 2.4 million hectares. In order to support a large population on limited land, a crop that can feed as many people as possible for every meter of land cultivated is needed. In Japan's case, this crop is rice.

The two world staples are rice and wheat. In Japan, however, due to the abundance of rain, even given efforts in planting and grain improvement, the climate is not suitable for growing wheat and the harvest would be extremely low, particularly when compared with the European Community (EC). For example, in the 12 EC countries the average wheat harvest for every 10 ares (1,000m²) is about 500 kilograms. This same area in Japan would only yield about 350 kilo-



grams.

Let's look at the constituents of wheat flour and white rice (from the *Standard Tables of Food Composition in Japan*, 4th revised edition):

For every 100 grams:		
	Wheat Flour	White Rice
Energy:	368 cal	356 cal
Protein:	8 gm	9.2 gm
Fat:	1.7 gm	1.3 gm
Iron:	0.6 gm	0.5 gm
Vitamin B1:	0.13 ml	0.12 ml

As we can see from the above, the nutritional value of the two crops is almost identical. As long as the nutritional value of the two crops is almost the same, it makes sense to plant the crop that has a higher yield per unit of land used. And this is why Japan chose rice, a crop suitable to the country's climate, as its staple food.

The seas surrounding the Japanese Archipelago have been known as one of the world's best fishing grounds since ancient times. Fish that feed on plankton tend to gather in oceans of high latitude. Furthermore, because cold and warm ocean currents converge in the seas surrounding Japan, tremendous quantities of fish gather at this junction line. Blessed with such food resources the Japanese people came to depend, to a large extent, on the sea for their daily food. From the remains of the primitive age, we have learned that prehistoric Japanese came to depend on sea products. The number of archeological sites where huge seashells have been discarded is so numerous there is even a Japanese expression *kaitzuka*—meaning a place where shells are piled in heaps—used to describe these ancient sites.

This is not to say that primitive Japanese people did not hunt for deer, boar or rabbit in the mountains. But excavation at long beaches yields large amounts of shellfish. Fish, crabs and shrimps were abundant in the shallow waters of coves, and in certain seasons, when herring and sand fish came to shore to lay their eggs, the sheer numbers actually changed the color of the sea. In the



The decision Japan makes regarding the rice issue, part of discussions at the never-ending Uruguay Round, will be based on prevailing international opinion.

rivers of eastern Japan the number of salmon just about covered the water surface. One could also catch *ayu*, eels, carps and crucian carps at any of Japan's lakes and small rivers. Given this situation, it is safe to assume that rather than mountain hunting, ancient Japanese found fishing and gathering shellfish on the shore much easier.

Even today Japanese food culture continues to depend on the sea. According to the 1991 Food Balance Sheet provided by the Ministry of Agriculture, Forestry and Fisheries, on a per capita basis Japan produced 29 kilograms of meat products, while it produced as much as 36 kilograms in fish and shellfish products. In Europe it is common knowledge that as salaries increase, so does the consumption of meat products. But in Japan it is the consumption of fish and shellfish that rises. Despite liberalization of beef imports, the amount of imported meat for fiscal 1991 was only 1.66 million tons, while for the same year 4.32 million tons of fish and shellfish were imported, more than double the amount of beef (Food Balance Sheet for 1991). In terms of dollars, \$5.5 billion was spent on imported meat, but nearly \$11.8 billion was spent

on imported fish and shellfish (according to trade statistics).

Least self-sustaining major power

According to figures provided by the Ministry of Agriculture, Forestry and Fisheries, the calorie-supply self-sufficiency rate for Japan, calculated for 1991, is only 46%. This is lower than Switzerland and is the lowest among advanced nations. For the same year, the total amount of agricultural imports was roughly \$27.4 billion, with the U.S. providing 40% of the imports, the EC next with 13%, then China at 8% and Australia at 7%.

As much as 80% of corn and soybean imports, 60% of wheat imports and 50% of beef imports came from the U.S. Once when anchovy could not be harvested due to an El Niño phenomenon, a worldwide scarcity in soybeans occurred. At that time, President Nixon banned the export of soybeans by criticizing the practice of "giving priorities to other nations at the expense of our own dining table." Consequently soybean prices in Japan

Self-Sufficiency Percentage for Main Food Groups

Country	Grains	Wheat	Rice	Sugar	Potato	Beans	Vegetables	Meat	Eggs & Chickens	Fish & Shellfish
United States	171	226	249	87	107	128	99	97	101	71
Canada	197	433	-	9	117	113	75	112	102	298
England	116	108	-	51	94	80	58	81	95	83
Italy	80	77	87	69	97	79	128	74	92	56
Switzerland	47	64	-	40	100	14	55	90	50	11
Germany (former West)	95	98	-	112	93	16	37	92	73	45
France	205	232	46	151	104	196	89	99	98	72

Source: Food & Agriculture Organization of the United Nations

skyrocketed three times and many stock breeders who relied on soybean scrap for feed were forced into bankruptcy.

Because of the great dependence on foreign nations for food, Japan cannot help but be alarmed when the U.S. uses food as a weapon in world warfare. This was demonstrated in Washington's boycott of agricultural imports to Afghanistan during the former Soviet Union's invasion and again during the Gulf War when Washington banned imports of foodstuffs to Iraq.

Inclination toward high quality

It is unquestionable that the price for apples in Japan is surprisingly higher than that in Western Europe. But such a comparison is akin to comparing a glass made for daily use with a crystal glass made in Czechoslovakia. In other words, it is like comparing a daily commodity with a piece of artistic work and saying that the artistic piece is too expensive. Such comparisons have no meaning.

If we leave the growing of a fruit to nature we can expect both good crops and bad ones. Every year in Japan, when the apple flowers come into bloom, farmers thin out the number of flowers to regulate the harvest. In this way, they even out the extremes in good years and bad years. In addition, in order to make sure that the flowers will bear fruit, many farmers either keep bees or adopt artificial, manual pollination methods. The farmers then work on making sure the fruit will grow large. This they achieve by leaving only

one fruit on each branch. In other words, a good portion of the apples are picked while they are still small. This is why all Japanese apples are as large as a fist.

Given the high temperature and humidity of Japan, fruit suffers great damage from diseases and pests. That is why, depending on the location, apple farmers might have to crop dust as much as 15 times a year. To prevent apples from being eaten by pests, from becoming mildewed and from being damaged by tree branches, most of the apples are covered in bags when the fruit is small. This is called *fukurogake*. Japanese people, being picky about the appearance of their food, will not buy apples with the slightest bruise. So by covering the apples with bags, farmers try to grow perfect apples.

By bagging the apples, however, they remain green from lack of sunlight. That is why when the shipment season comes, farmers must take off the bags. And to make sure the apples are colored with a delicious look, farmers, using a method called *tamamawashi*, rotate the apples under the sun. To save time, recently some apple growers have placed reflective boards covered with tinfoil below the trees.

Still, what was the origin of growing such artistic apples? Japanese people don't consume apples by turning them into juice, nor do they use them as raw material for making alcoholic drinks or cakes. It is the norm for Japanese to eat raw apples the way they are. Furthermore, because for a long period fruits were precious, many people use apples as presents, which is why the appearance of the fruit has been emphasized so much. A charac-

teristic of Japanese food culture, expressed in the saying "you eat Japanese food with your eyes," is the demand for the perfect appearance to the point of excessiveness and at the expense of very high prices. That the Japanese began to imitate Westerners by drinking apple juice is a phenomenon that has only occurred within the past 10 years.

The price of potatoes in Japan, for example, is also very high. But after some investigation I found that the kind of potatoes displayed at Japanese stores are all the same size—there aren't any big or small ones. In addition, there is not a trace of dirt on them. The kind of potatoes one finds in Western Europe, on the other hand, are often full of dirt and come in uneven sizes, among them many small ones. It is understandable, therefore, why there is such a discrepancy in price.

Of course Japanese potatoes, when first dug out from the field, also vary in size. But, before they are sent to retail stores, the small ones are taken out and discarded. By simple calculation we estimate that half of the potatoes dug out from the field will be dumped. So, it is not so difficult to understand why the price here is twice as high.

That the Japanese are overly fussy about their food being fresh also has helped pushed prices up. Some say this inclination came from the custom of consuming daily the kinds of fish that are easily perishable. So fussy are they that many Japanese even insist that their processed food be fresh. Japanese housewives, when shopping for milk, bottled or canned food, tend to buy only fresh products by checking the manufactured dates. Consequently, many stores are left with a lot of picked over items that eventually end up in the garbage dump.

Changing eating habits

Just as American's diet has been greatly influenced by the U.S. Senate Select Committee on Nutrition and Human Needs, Japanese diet objectives have also been influenced by new dietetics and medical knowledge.

Japan was burnt to the ground during the Pacific War. To the Japanese who barely had enough to eat everyday, the rich diet and well-built bodies of the

Occupation soldiers were things to aspire for. After the war, Japanese diet objectives were modeled after the Americans: become rich and to eat well. By doing so, it was hoped that the younger generation would become strong and stout like the Americans.

At that time the Japanese diet consisted mainly of rice and vegetables. Fish, eggs and meat were eaten only when available. Because the amount of energy intake was limited, people had been instructed to fry their vegetables in oil. Since olden days, Japanese protein intake has come from plants such as *miso* bean paste, *tofu* and *natto* (fermented beans). But in order to absorb better quality protein, they were told to eat fish and meat.

Meanwhile, food rich in fiber, such as *konnyaku* (jelly made from konjak), bur-

dock and soybeans were looked down upon for their low food value and were seen as something that merely passes through the body. Regarding rice, after one professor at the medical department of a certain famous university once openly stated, "If you eat rice, you become a fool," many people became self-conscious and purposely reduced their consumption of rice.

It is said that this was the beginning of Japanese schools adding bread to the lunch menus. Looking back, we realize we are now completely overturning the dietetics of that time. The amount of nutritional intake from data provided by the Ministry of Health and Welfare shows that the per capita energy intake of the Japanese in 1975 increased to 2,226 calories. But from then, there has been a

downturn, and in 1990, it decreased to 2,026 calories. If we take into account that the Japanese physique is different from that of Western people, we then realize they do not need any more energy than what they already have. We can say that we have reached the level of satiety.

Based on the above survey, if we compare the average Japanese intake of nutrition with the average amount normally needed, we will see that energy intake is over 100%; protein has reached over 120%; and the intake of vitamins is also over 100%. In fact, the Japanese intake of vitamin C is more than 240%.

While countries that are leading in dietetics are recommending more intake of grains, despite trends toward a decrease in rice consumption a good portion of grain is still being consumed in Japan. Many people even say that a balance is ideal for our health.

In the past, the national disease was tuberculosis, but today the biggest threat is cancer and circulatory diseases. We are now in an age where it is the excessive consumption of animal fat, sugar and relative super nutrition that worries us. In an age of a sharp increase in colon cancer, it looks like the consumption of food fiber, which was once thought of as useless, will again be put under the spotlight. Indeed, Japanese diet trends are being reversed from those of the post-war period.

Japan, which enjoys a high educational level, can easily popularize knowledge of medicine and dietetics. Looking at the production of basic food on a per capita basis, we can see that Japanese people have become more health-conscious, the increase in fatty foods has peaked and sugar consumption has dropped below what it was 20 years ago. What deserves special mention here are potatoes. While in the post-war period consumption dropped year after year, in the last few years there is indication of a steady comeback.

Some economists had predicted that when salaries increase, the consumption of potatoes drops. In light of a health-oriented society, this prediction must be corrected. From now on, the Japanese diet will not only depend on climate, weather conditions and personal income, but perhaps on health consciousness as well. ■

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