



Japan's food self-sufficiency ratio

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The Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) recognizes “improving Japan’s food self-sufficiency ratio” as the highest priority target of Japanese agricultural policy. Every year since Japanese Fiscal Year (JFY) 2010, the phrase “food self-sufficiency ratio” has appeared in the title of the first chapter of the *Annual Report on Food, Agriculture and Rural Areas*, MAFF’s most important annual publication. This implies how seriously MAFF has focused on the food self-sufficiency ratio in recent years.

The food self-sufficiency ratio is calculated by dividing the total domestic food supply (including exports) by total domestic food consumption. The total domestic supply here means the total domestic production minus the total import of feed crops. MAFF provides two types of estimates of the food self-sufficiency ratio. One is on a production value basis, and the other is on a calorie value basis. The former evaluates consumption and production of agricultural commodities by their market prices, while the latter does so by their caloric values.

By MAFF’s estimation, Japan’s food self-sufficiency ratio for JFY 2011 was 66% on a production value basis and 39% on a calorie value basis. MAFF assumes that, in discussing a nation’s food security, the food self-sufficiency ratio on the calorie value basis is more appropriate than that on the production value basis. Thus, this paper’s discussion also relies on the calorie value basis. MAFF finds that Japan’s food self-sufficiency ratio is remarkably low compared with other major, advanced nations. MAFF asserts that this low food self-sufficiency ratio implies that Japan’s food security is in danger.

MAFF also provides historical estimates of Japan’s food self-sufficiency ratio for all the years since JFY 1965. Japan’s food self-sufficiency ratio was 73% (on the calorie value basis) in JFY 1965. It declined to around 40% in the middle of the 1990s and has been at almost the same level since then. In that sense, Japan’s food security has been in a dangerous situation for more than ten years.

Previously, the low percentage of Japan’s food self-sufficiency ratio had not drawn

much attention among Japanese consumers, but the worldwide crop price shock in 2008 changed the atmosphere of Japanese society, recalling the bitter memory of a sharp hike in food prices when the USA implemented an embargo on soybean exports in 1973. After the worldwide crop price shock in 2008, not only agricultural groups but also many consumer groups agreed with MAFF that Japan should ensure a drastic increase in the food self-sufficiency ratio as soon as possible. Many Japanese elementary schools identified Japan's low food self-sufficiency ratio as a serious problem confronting Japan. In class, pupils were asked: What will happen to Japanese society if the food trade suddenly becomes impossible?

MAFF points out two major reasons for this drastic decline in the food self-sufficiency ratio since JFY 1965. First is the change in dietary habits of Japanese consumers. In the postwar period, the lifestyle of Japanese consumers changed from a traditional to a westernized one. Accordingly, Japanese consumers showed a preference for western-style dishes, which are largely prepared with the use of foreign agricultural commodities. Second is the growth of the average size of livestock farms. For example, the average number of feeding dairy cows on a dairy farm increased from two in 1960 to 40 in 2010. Previously, livestock farmers self-supplied most feed crops by diverting their labor not only to raising cattle in a barn but also to growing feed crops in an upper field. Today, livestock farmers concentrate on raising large numbers of cattle in a barn and rely on imported feed crops, which are produced at cheaper prices in countries where land-abandonment is prevalent such as Canada, the USA, and Australia.

In JFY 2008, MAFF launched the campaign Food Action Japan, which aims to stimulate demand among Japanese consumers for domestic agricultural products. Food Action Japan is a joint work project of the central government, local governments, and private companies. The headquarters of Food Action Japan initiates various activities such as exhibitions of domestic agricultural commodities, food education classes at elementary schools, cooking classes for housewives, and awards for local activities that promote consumption of local agricultural commodities. Food Action Japan encourages companies and groups that sympathize with their activities to register as "supporters" of Food Action Japan.

Regarding the operation of various activities of Food Action Japan, MAFF relies on Dentsu, which is Japan's largest advertising company and has rich experience in distributing messages to the masses. The headquarters of Food Action Japan is located in the office of Dentsu. MAFF allocated 650 million yen in JFY 2008 and 600 million yen in JFY 2009 for Dentsu's set up and operation of the Food Action Japan project.

In addition to Food Action Japan, MAFF started another unique campaign called

the *kokupo* project in JFY 2008, aiming to encourage consumers to purchase domestic foods. In this project, consumers receive *kokupo* points by purchasing domestic agricultural commodities designated as *kokupo* commodities in shops designated as *kokupo* shops. The *kokupo* points are used to apply for free prizes. The *kokupo* project is also organized by Dentsu with the financial support from MAFF. This new system is still in the trial-and-error process. Every year since JFY 2008, the headquarters of the *kokupo* project has revised the way consumers collect *kokupo* points. The lists of *kokupo* commodities and *kokupo* shops changes every year. In JFY 2012, nearly 200 shops were listed as *kokupo* shops. So far, the *kokupo* project is not as widespread among Japanese consumers as MAFF expected. For example, while they had expected around fifty thousand applications for free prizes in the first round of the *kokupo* campaign in JFY 2012, the actual number of applications was forty thousand. According to an online survey conducted by the headquarters of the *kokupo* project, only 8.7% of respondents knew about the *kokupo* project. In addition, in order to operate the *kokupo* system, extra effort is sometimes needed from companies who are participating in this project. This burden is recognized as a major reason why many companies are reluctant to join the *kokupo* project.

MAFF has three priority crops for increasing Japan's food self-sufficiency ratio: rice, wheat, and soybeans. Because these three crops contain high calories per weight, their production strongly affects the food self-sufficiency ratio. MAFF's special policies targeting these three crops are as follows.

Rice

Rice is the most symbolic crop in Japanese agriculture. It accounts for nearly one-third of the agricultural gross domestic product (GDP). While domestic rice prices are generally much higher than the international ones, rice imports are limited because of a prohibitively high tariff on rice. The cost of domestic rice production is so high that rice exports are also limited. Thus, it would be legitimate to argue that Japan's rice market is isolated from the international market. In this situation, increasing domestic rice consumption is one of MAFF's major efforts toward increasing Japan's food self-sufficiency ratio.

Japanese consumers eat rice as their staple food. As a result of the westernization of Japanese consumers' dietary habits, however, the demand for rice as a staple food is declining. While the average Japanese consumer ate more than 100 kg of rice per year in the early 1960s, that number had declined to 60 kg in 2012. In order to stimulate consumption of rice as a staple food, MAFF impresses upon Japanese consumers the healthiness of

traditional Japanese dietary habits. MAFF argues that the typical Japanese meal, which consists of rice, soybean products, vegetables, and fish, is low-fat and rich in dietary fiber. MAFF also urges the importance of having rice for breakfast. MAFF estimates that 17 million consumers do not usually eat breakfast. MAFF asserts that breakfast has various favorable effects on a person's mental and physical condition. MAFF uses the slogan *Mezamashi Gohan* (whose literal translation is "wake-up rice") to promote eating rice for breakfast.

Ordinarily, Japanese consumers steam rice without spices using an electronic rice cooker. Besides this common way of cooking, MAFF is trying to promote different ways of consuming rice. For example, rice can be ground into rice flour, which can be used for various types of cooking. Traditionally, rice flour has been used mainly for making doughboy, a ball-shaped Japanese snack. Doughboy is not a popular snack anymore, but rice flour can be used for making western-style foods such as bread, pasta, pizza, and cake. Currently, restaurants and food manufacturers use mainly wheat flour made from imported wheat for these western-style foods. Imported wheat is less expensive and better able to produce flour than domestic wheat and rice. In addition, foods made from rice flour have a different taste and feel in the mouth. This novelty can be an advantage over ordinary foods made from wheat flour. Many companies and groups are making efforts to develop new commodities made from rice flour. The headquarters of Food Action Japan has organized them into the Rice Flour Club. Currently, nearly five hundred companies and groups are registered at the Rice Flour Club. MAFF's target volume of rice flour production in JFY 2020 is as high as 500 thousand tons, while only one thousand tons of rice flour were produced in JFY 2008.

Rice made into bread is regarded as one of the most prominent new demands for rice. Ordinarily, bread is mainly made from wheat flour. Bread from rice flour has a sticky texture, which meets the taste of Japanese consumers. The problem is the production cost of rice flour. Reflecting the high production cost of rice, the price of rice flour is more than twice that of wheat flour. In order to increase demand for bread made from rice flour, many local governments subsidize its use for school lunches.

Currently, the varieties of rice flour sold at supermarkets are limited compared with the wide varieties of wheat flour. Japanese consumers regularly purchase rice grains, but only purchase rice flour occasionally. To cope with this problem, home electronics companies have developed a new type of bread cooker that makes bread from rice grains. The advantage of this appliance is that bread can be prepared from ordinary rice grains, which is sold at the supermarket. This appliance was added to the lineup of home electronics companies in 2010, attracting so many consumers that it achieved record-breaking sales figures. The problem with this appliance, however, is its price, which is nearly double that of

an ordinary rice cooker. Some local governments provide subsidies for this new type of bread machine.

Rice can be used for cattle feed, too. MAFF is making efforts to develop the partnership between livestock farmers and rice farmers: rice should be used by livestock farmers to grow cattle and the excrement from cattle should go to rice farmers as an ingredient for manure. This partnership will increase the use of rice as a feed crop. This partnership is ideal from the viewpoint of ecology, too. However, the production cost of Japanese rice is too high for it to be used for feeds. To cope with this problem, MAFF promotes the research and development of high-yield rice varieties in agricultural experiment stations and provides subsidies for farmers who grow rice for feeds. MAFF's target volume for the total production of rice for feeds in JFY 2020 is 700 thousand tons, while the current level is only nine thousand tons.

Wheat

Currently, imported wheat accounts for nearly 90% of the total consumption of wheat in Japan. As an ingredient, wheat is used in various foods. Among them, the major ones are Japanese-style noodles, Chinese-style noodles, and bread. For Japanese-style noodles, domestic wheat accounts for nearly 70% of the wheat ingredient, but for Chinese-style noodles and bread, the share of domestic wheat is less than 10%. This is because the quality and price of domestic wheat are not as suitable for Chinese-style noodles and bread as imported wheat. MAFF provides financial support for research and development of new wheat varieties that are of better quality as an ingredient of Chinese-style noodles and bread. In addition, MAFF tries to reduce the cost of wheat production by promoting double-cropping, i.e., growing wheat after rice is harvested and before the next planting of rice begins. MAFF expects that double-cropping can reduce the cost of wheat production drastically, because farmers need no additional farmland and some of the agricultural machinery for rice cropping can be also used for wheat cropping. MAFF's target volume for the total production of wheat in JFY 2020 is 1.8 million tons, while the current level is only 88 thousand tons.

Soybeans

Domestic soybeans are used mainly in two ways. One is food processing. Soybeans are processed into foods such as tofu and shoyu (soya sauce). The other use is for oil distilling. Generally, high-quality soybeans are sold for food processing at higher prices, and

low-quality soybeans are sold for oil distilling at lower prices. Because of limitations in farming abilities of domestic soybean farmers, the quality of domestic soybeans is generally not as good as imported ones. As a result, a majority of domestic soybeans are sold for oil distilling. In Japan, nearly 1.5 million tons of soybeans are used for food processing, and 80% of them are imported. The total amount of domestic soybean production is 4.9 million tons, and 70% of domestic soybean production is sold for oil distilling. MAFF finds that there is much room for domestic soybean farmers to improve their farming technologies. MAFF provides a special extension program for soybean farmers. This program is called “Soybean 300A,” a name derived from the combination of 300 kg per tan (a tan is the traditional unit of farmland acreage; one tan is almost same as 10 acres) and the top grade of “A.” MAFF estimates that the soybean yield can be increased by from 20% to 30% by spreading the farming technology of “Soybean 300A” among soybean farmers. MAFF’s target volume of the total production of soybeans in JFY 2020 is 0.6 million tons, while the current level is only 0.26 million tons. In addition, through the activities of Food Action Japan, MAFF promotes the use of domestic soybeans among tofu and shoyu makers.

MAFF submitted its basic plan for food, agriculture, and village life in 2012 as MAFF’s new fundamental principles. In the basic plan, MAFF sets 50% as a target for Japan’s food self-sufficiency ratio for JFY 2020. MAFF describes how Japanese food consumption should change from JFY 2008 to JFY 2020 as follows: Rice consumption per person per year in JFY 2020 should be 62 kilograms, a 3-kilogram increase from 59 kilograms per year in JFY 2008. The percentage of domestic wheat and rice flour in the foods made from mainly wheat flour in JFY 2020 should be 40%, an increase of 30 percentage points from 10% in JFY 2008. The percentage of domestic soybeans in the foods made from soybeans should be 60% in JFY 2020, an increase of 30 percentage points from 30% in JFY 2008. The percentage of livestock products made from livestock grown with domestic feed crops should be 38%, an increase of 12 percentage points from 26% in JFY 2008.

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