

Tea Production and Tea Products in Japan

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Summary

More than 1200 years ago, tea was introduced to Japan from China. Though there have been several changes in tea types and production method during this long period, Japanese green tea developed independently with other countries. Now most popular Japanese tea is 'sencha' and more than 90% of Japanese green tea production/consumption is kind of 'sencha'. In this decade, green tea drink (canned or PET bottled tea) production in Japan has increased rapidly and has now reached more than 25% of total 'sencha' consumption. This has caused several changes in the drinking style of Japanese green tea and tea distribution. For further development of Japanese tea production in the future, more efficient and low cost production and distribution systems are required.

History of Japanese tea

Tea is the most popular and traditional beverage in Japan. The origin of Japanese green tea is not clear, but it must be introduced from China at least 1200 years ago (Figure 1). It was Tang Dynasty in China, and almost the same time when Lu Yu wrote "Tea sutra", the oldest textbook about tea. In these days in China, their tea was steamed brick tea. So, this tea in Tang Dynasty seems to be one origin of Japanese steamed green tea.

Japanese tea production

Figure 2 shows changes of total tea production in Japan. In these 40 years, amount of Japanese tea production have been almost constant, around 90,000 to 100,000 tons. But in 1980`s, amount seemed to be slowly decreasing. But in this 15 to 10 years, it seem to be recovered. One reason is that functions on health of tea were widely recognized by consumers. But more important

effect was rapid increase of production of ready to drink type teas -- canned or PET bottled tea drink. Among Japanese tea production, kinds of 'sencha' accounts for more than 90% of total production. Nearly half of production are from first crop -- April to May, it is the most high quality season and the price of crude teas are 2 to 3 times expensive than the second crop in early summer. So, Japanese tea farmers incomes are heavily depend on the first crop tea. And average yield of low leaf is about 10 t/ha, and as processed crude tea, it's about 2 t/ha.

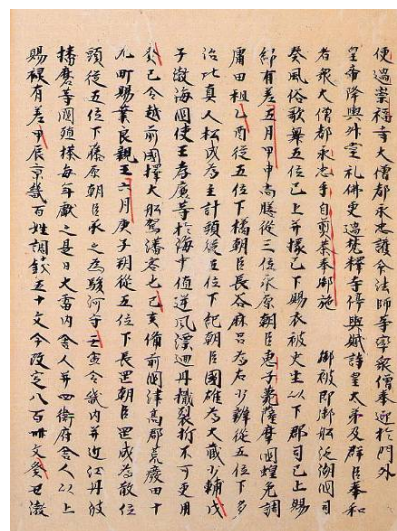


Figure 1 Oldest document about tea in Japan (A.D.815)

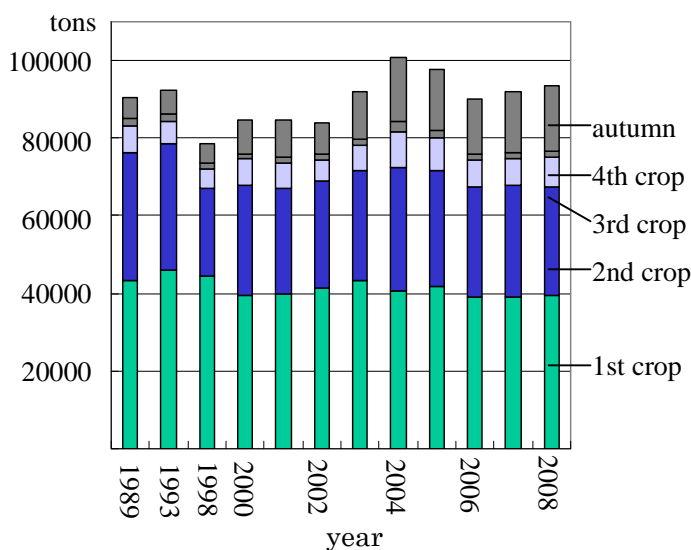


Figure 2 Tea production in Japan

Figure 3 shows main tea production area in Japan. Shizuoka prefecture is the biggest area and there are nearly half of tea field of Japan. Next production area is Kagoshima prefecture, in Kagoshima there are large tea fields and high efficiency and mechanized tea field management is very characteristic. And Kyoto is the oldest tea production area in Japan, and is origin of Japanese green tea, 'sencha'.

What is Japanese 'sencha'?

Sencha is most popular tea in Japan, and very characteristic tea in the world, because it is steamed green tea. In ordinary 'sencha' processing, plucked tea shoots must be steamed for less than 1 min as soon as possible, in order to maintain fresh aroma, flavor and color of fresh shoots. After steaming, shoots are dried under low leaf temperature less than 40 degree centigrade with continuous rolling, and make a thin straight shape like a needle. This processing method was established about 300 years ago in Uji, Kyoto. And originally, it was manufactured by hand. It takes about 4 to 5 hours by two or three persons and products about 500g crude tea. (Figure 4)

Now processing of 'sencha' was replaced by tea drying and rolling machines. But we need steaming machine and at least 5 rolling and drying machines to produce traditional quality of 'sencha'. (Figure 5).

Japanese tea consumption

Figure 6 shows changes of consumption of teas in Japan. Green tea consumption have been around 100,000 t, this means almost all green tea produced in Japan are consumed domestically, and some portion are supplied by imported 'sencha' mainly from China. Black tea and Oolong tea are all imported, black tea mainly from Sri Lanka and India about 15,000 t, Oolong tea from China about 20,000 t. In these 30 years, oolong tea have become very popular tea in Japan, both canned or PET bottled and leaf. Totally, Japanese consume 1.14kg tea per person in 2007.

Recent situations of Japanese tea production

Tea is very traditional beverage in Japan. But recently, there seems to be several changes in tea production and distribution. Figure 7 shows changes of crude tea price in these 20 years. This is average price of all Japan, first crop, second crop and third crop. And in these 15 to 20 years, price seems to be gradually getting lower. This price down is making serious damages to many tea farmers in Japan.

Figure 8 shows changes of tea drink production in Japan. We can see rapid increase especially in these 10 years. Recently, such ready to drink tea rapidly spread in Japan and accepted by every generation. Now about 25 % of tea leaf production is used for tea drinks. For such ready to drink tea production, demands for relatively cheap teas are increasing. So it seems one reason of recent low price in crude tea

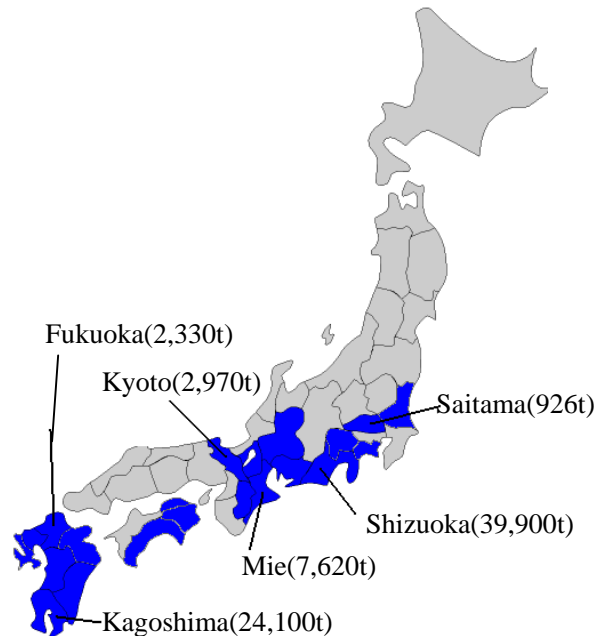


Figure 3 Tea production areas in Japan



Figure 4 Traditional 'sencha' manufacturing

trading.



Figure 5 Japanese green tea ('sencha') manufacturing machines

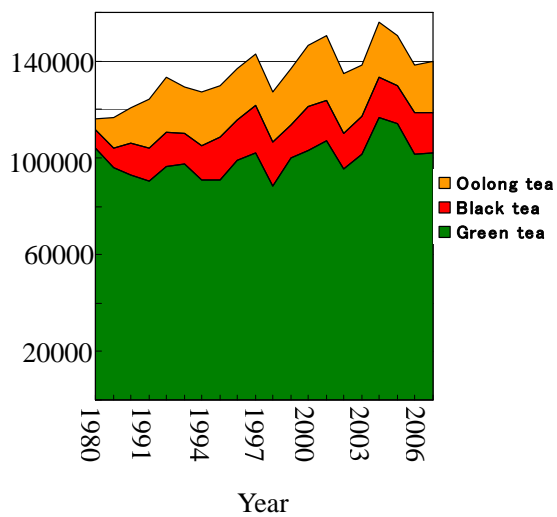


Figure 6 Tea consumption in Japan

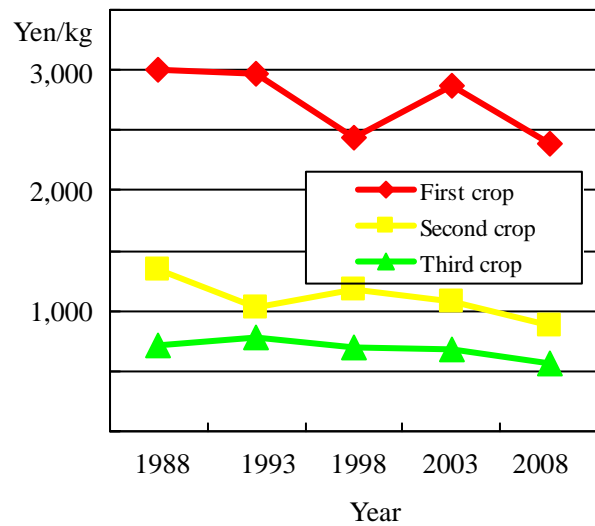


Figure 7 Average price of crude 'sencha' in Japan

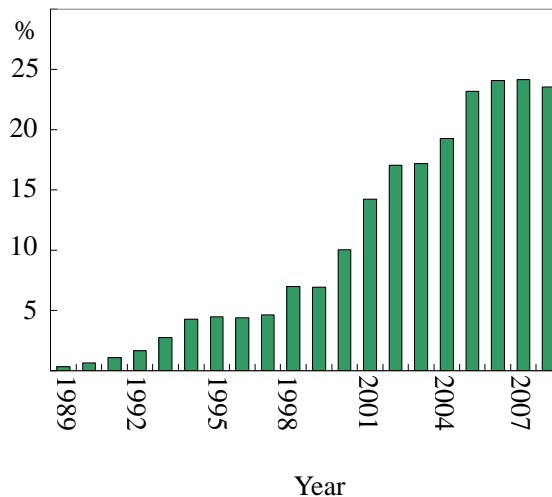


Figure 8 Ratio of green tea drink production, estimated as tea leaf

Problems and requirements in Japanese tea production

Though tea is very traditional beverage in Japan and has long history, now situations of tea production are changing. For development of Japanese tea production, there are many problems to be solved. For example,

1. Low input and sustainable cultivation

Tea cultivation in Japan has depended on high fertilizer application. Especially, nitrogen fertilizer was believed to be important for good leaves with high amino acid contents. It resulted in excess amount of nitrogen fertilizer, and eventually it caused pollutions of environment around tea fields. Now many efforts are made by national and local governments to reduce fertilizer. For example: introduction of new cultivar with high nitrogen intake, proper amount of fertilizer application based on determination of nutrient status of soil and tea tree, introduction of new fertilizer such as controlled release fertilizer etc.

2. Establish more efficient tea production system

As mentioned before, price of first crop 'sencha' in tea market shows the tendency to decrease. In addition, price of fuel and fertilizer are increasing. For further development of Japanese tea production in the future, more efficient and low cost production and distribution system must be established.

3. Consumers demands for reliability and safety of tea

Recently not only in Japan, consumers are much interested in reliability and safety of foods. These include, for example, quality assurance, valid display of place of production (country or prefecture), food additives, residual level of agricultural chemicals etc. For these demands of consumers, detailed records of tea products (place of tea fields, usage of pesticides, factory name and routes of distribution) are required and establishment of traceability system between tea production and consumption is expected.