Current State of Soy Sauce from the Viewpoint of the Trade Association's Efforts

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Decrease in Soy Sauce and Increase in Soy Sauce-Based Condiments

The shipment volume of Japanese soy sauce in 2019 was 744,263 kiloliters. This was less than 60% of the 1,294,155 kl shipped in 1984, which was the largest shipment volume since these statistics were first tracked in 1961. During this period, Japan's population more or less held steady at roughly 120 million people. But their consumption of soy sauce had decreased.

Meanwhile, shipments of dashi soy sauce (stock and soy sauce mixture), noodle soup base, and other soy sauce-based condiments increased by more than 40% over some 15 years, from 221,433 kl in 2003 to 320,164 kl in 2019. Though the shift to mayonnaise and other western sauces and condiments has been one reason for the decline in soy sauce consumption, it seems the main reason is a shift from soy sauce to soy sauce-based condiments.

In fact, soy sauce shelves in supermarkets are commonly stocked with soy sauce-based condiments, such as katsuo (shaved dry bonito) soy sauce and kombu (kelp) soy sauce, which seem to be taking the place of soy sauce. Consumers are commonly seen picking up soy sauce-based condiments as though they are an everyday purchase.

Is JAS a Contributing Factor to the Decrease in Soy Sauce Consumption?

Currently there are two soy sauce trade organizations. One is Zenkoku Shoyu Kogyo Kyodokumiai Rengokai (Japan Federation of Soy Sauce Industry Cooperatives: JFSSIC), which was established under the Small and Medium-Sized Enterprise Cooperatives Act; most soy sauce manufacturers in Japan are members. Another is Nippon Shoyu Kyokai (Japan Soy Sauce Association: JSSA), a voluntary organization consisting of the five leading soy sauce companies and the JFSSIC as members. The organizations were both established in 1962.

In the following year, 1963, Japanese Agricultural Standards for Soy Sauce were established under the Act on Japanese Agricultural Standards (Act No. 175 of 1950: JAS Law) preceding the current JAS Law, and JFSSIC became a JAS-registered grading organization. With a cooperative in each prefecture put in charge of conducting inspections and management of labeling according to JAS standards as a grading office, industry-wide efforts to deal with the JAS system started.

At that time there were roughly 3,300 soy sauce factories in Japan, and it is recorded that most of those soy sauce manufacturers became JAS certified factories. The records from that time state that JAS applications addressed to the Minister of Agriculture and Forestry would have made a tower of 99 meters if they were stacked, and fully occupied the conference room in the building where JFSSIC and JSSA were (and are) located.

In 1965, there were roughly 4,400 soy sauce factories in Japan, and more than 80 percent of these manufacturers had an annual production volume of 180 kl or less. As more than 3,000 of the top companies were JAS certified, it can be imagined that most soy sauce distributed in Japan had a JAS logo attached.

Soy sauce was defined in the JAS at that time as shown in Table 1, and the definitions are almost identical to current definitions of soy sauce. The initial legal definitions of soy sauce were established in this way. The commentary on

Table 1 Excerpt of soy sauce standards (announced on January 30, 1963)

(Definitions)

Article 2 In these standards, the types of soy sauce are as listed below:

Terms	Definition
Koikuchi Shoyu (Common soy sauce)	Liquid made by fermenting and aging vegetable protein and carbohydrates broken down with koji mold enzyme, or made by mixing vegetable protein hydrolyzed with hydrochloric acid with the above-stated liquid. The liquid has a clear salty taste, with uninhibited color and gloss.
Usukuchi Shoyu (Light-colored soy sauce)	Liquid made by fermenting and aging vegetable protein and carbohydrates broken down with koji mold enzyme, or made by mixing vegetable protein hydrolyzed with hydrochloric acid with the above-stated liquid. The liquid has a clear salty taste, with reduced color and gloss.
Tamari Shoyu (Tamari)	Liquid made by fermenting and aging vegetable protein (main ingredient) broken down with koji mold enzyme, or made by mixing vegetable protein hydrolyzed with hydrochloric acid with the above-stated liquid. The liquid has a clear salty taste, with uninhibited color and gloss.

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Born in Saitama Prefecture in 1964, the year of the Tokyo Olympics. Since learning the magic of brewing at Tokyo University of Agriculture, Mr. Matsumoto has been involved in soy sauce throughout three eras, from Showa to Heisei and Reiwa. This has been only a short time compared to the long history of soy sauce, but he is thoroughly intrigued by the charm of soy sauce as a food, and by its ingeniously designed manufacturing technologies. In 2020, the year of the second Tokyo Olympics, he is striving daily to help convey the charm of soy sauce through the JAS.

the standards at that time states, "*Saishikomi* (refermented) soy sauce and *shiro* (extra light-colored) soy sauce with very small production volumes shall be defined in standards in the future when volumes have increased considerably." Thereafter, five types of soy sauce, *koikuchi* (common), *usukuchi* (light-colored), *tamari* (thick), *saishikomi* and *shiro* were covered by JAS. The commentary further states, "Definitions provided here are not complete, as only leading production processes are described," and, "It is assumed that there are numerous different varieties of soy sauce locally, which should be classified individually into the appropriate categories as determined by the regional inspectors."

The definitions of soy sauce stipulated at that time remain unchanged to this day, where it is defined as a clear liquid condiment made by fermentation and maturing after all materials are turned into koji, with no materials not derived from plants. In addition, it is stated that hydrolyzed vegetable protein can be added during the process, which provides for the current *kongo jozo* (semi-fermenting) method and *kongo* (mixing) method.

Because of these definitions, products in which soy sauce is mixed with shaved dry bonito, kombu kelp or other dashi stocks, or with animal materials (such as oyster-flavored soy sauce), which are used to impart additional umami and make cooking easier, cannot be labeled as soy sauce in the information items required to be displayed under the Food Labeling Standards. This is the case even if the use is the same as that of soy sauce and even if the product's name is *** soy sauce.

However, comprising more than 20% of soy sauce products in the soy sauce corners of supermarkets, and among the top 50 selling soy sauce products reported monthly in the *Daizu Yuryo Nippo* (Soybeans and Oil Daily News), are soy sauce-based condiments such as kombu-flavored soy sauce and oyster-flavored soy sauce.

Soy sauce as defined by the JAS seems to be quite different from soy sauce as defined by consumers.

Statistics of production volume of soy sauce announced by the Ministry of Agriculture, Forestry and Fisheries (MAFF) do not include soy sauce-based condiments. This is likely one of the factors contributing to the decrease in the official production volume of soy sauce.

Incidentally, there are no JAS standards stipulated for miso, and miso with added dashi is included in the category of miso in the definition of the Food Labeling Standards. There is a clear difference in the attitude between the two industries here.

Difference Between Soy Sauce and Miso Industries

The miso industry is represented by the Japan Federation of Miso Manufacturers Cooperatives. Its members include 1,080 companies, accounting for roughly a third of the 3,000 miso manufacturers in Japan. Compared with the over 80% participation rate of companies in soy sauce trade organizations, the miso manufacturing industry has fewer companies affiliated with its primary organization.

Comparing the industry-wide effort of the soy sauce industry in dealing with the JAS since the time of its establishment to the relatively inactive and unengaged miso industry, the differing priorities of the two industries seem clear. The soy sauce industry has prioritized the activities of the entire industry while the miso industry has prioritized the activity of each individual company.

Although the relative merits of the two approaches are up for debate, key differences are seen in the ways the two industries are responding to the partial amendment of the Food Sanitation Act that will come into effect in June 2021, which mandates hygiene management in accordance with HACCP (hazard analysis and critical control points) for all food business operators.

The soy sauce industry, under the direction of the Ministry of Health, Labor and Welfare, published the "Guidebook for Hygiene Management in Soy Sauce Production Incorporating the Concept of HACCP" to support the introduction of HACCP, and distributed it to all member companies of the cooperatives so that all soy sauce business operators, including those who were not interested in the HACCP, could comply with the new regulations. (Fig. 1)


しょうゆ製造における
HACCP の考え方を取り入れた衛生管理のための
手引書
～HACCP 導入支援のための手引き（初級者用）～
2018年11月
日本醤油協会
全国醤油工業協同組合連合会
一般財団法人日本醤油技術センター

Fig. 1 Guidebook published on the Ministry of Health, Labor and Welfare's website

In addition, all cooperatives brought in instructors to provide assistance with the guidebook, and offer workshops and individualized coaching on the implementation of management in accordance with general hygiene management and the guidebook.

To address the significant amendments to labeling that were fully implemented in April 2020, the "Soy Sauce Labeling Text" was prepared and distributed to all member companies of the cooperatives. With the labeling instructors in all cooperatives, individualized coaching on the registration, confirmation and alteration of labels has also been conducted.

These activities represent the industry-wide participation and coordination that may be considered characteristic of the soy sauce industry.

This characteristic is also seen in the structural improvement project spurred by the Act on Promoting Small and Medium-Sized Enterprise Modernization, under which the industry established new plants across Japan in 1965 to produce *kiage* (raw soy sauce) in a collaborative effort. The project led to the quality improvement of soy sauce as a whole, which carried over to the establishment of higher grades in JAS standards.

On the other hand, the establishment of JAS standards for miso was once considered, and plans for standards

were reviewed. Though Miso Quality Labeling Criteria stipulating labeling rules, which was a part of the then JAS system, were formulated, Japanese Agricultural Standards for Miso to stipulate materials and a quality index for miso were not established.
In response to our inquiry about consideration of JAS standards for miso at that time, a former official of the MAFF told us that, even with the same type of miso, such as kome miso (rice miso), quality varied widely by region and by manufacturer, making it difficult to draw lines with nationally uniform standards. In addition, he noted the industry expressed strong objection to such unification. Therefore, despite the principle of the JAS system at that time to establish JAS standards and quality labeling criteria as a set, only quality labeling criteria were achieved.

Issues of the Industry-Wide Activities

If issues concerning the activities of all the cooperatives had been considered, the situation might be different today.
One issue concerns the overall approach to the JAS. Currently, all soy sauce characteristics are described by the 5 types and 3 manufacturing methods specified in JAS standards. Meanwhile, miso, for which JAS standards were not established, has a number of varieties on the market. Not only are there *kome* miso and *mame* miso (soybean miso), but even within *kome* miso, there are varieties that emphasize regional characteristics, such as Shinshu miso and Sendai miso. There are a great many varieties of miso on the market, each having unique characteristics. With so many different types on the market, consumers have broader choices, and individual business operators can explain the differences to consumers in easy-to-understand ways.
Soy sauce could have a similar market to that of miso. However, as a basic tenet of JAS standards is limiting the materials used to a minimum, adding new food materials and additives is problematic for soy sauce. As most soy sauce cooperative members comply with JAS standards, it has been difficult to include flavoring ingredients such as kombu kelp, shaved dry bonito or other dashi stock that are used in soy sauce-based condiments in the definition of soy sauce. Incidentally, the definition of miso includes miso containing dashi stock. With these standards, it will be difficult to broaden the definition of soy sauce for a new market.
As a result, the soy sauce containing dashi stock that is popular among consumers has not been added to the category of "soy sauce," but is instead referred to as a "soy sauce-based condiment." And yet its market is expanding.

Current Circumstances of the Industry

Currently, in contrast to the decreasing domestic production of soy sauce, overseas exports and overseas production volumes are increasing. Soy sauce exported from Japan amounted to roughly 37,000 kl in 71 countries in 2019. This is a 4.5-fold increase in volume over 30 years, compared to the roughly 8,000 kl sent to 53 countries in 1989. This is partly attributable to the growing attraction of soy sauce as a world-class product, but is also due to the aggressive overseas business development activities of Kikkoman Corporation and other companies.
Since washoku (traditional Japanese cuisine) was added to the UNESCO Intangible Cultural Heritage list in 2013, a remarkable increase has been seen in the number of Japanese restaurants overseas. The number is still growing. For example, the number of Japanese restaurants in Thailand more than doubled, from 1,806 in 2013 to 4,094 in 2020. The rate of growth in 2020 was 5.6% in the capital city of Bangkok, while it was 21% in the provinces, showing that Japanese restaurants have spread even to less urban areas. Along with that trend, the soy sauce market is also expected to expand from major urban cities to the provinces. Traditionally brewed Japanese soy sauce is already commonly found in supermarkets throughout Thailand.

Development of the New JAS

While the Japanese soy sauce market is expanding overseas, imitators abound. Some overseas supermarkets sell products by non-Japanese manufacturers labelled with large Japanese characters. This can confuse consumers into thinking they are getting Japanese soy sauce at low prices, though these products are often quite different from ordinary Japanese soy sauces in flavor and manufacturing methods.
The situation became even more chaotic when a proposal for Japanese soy sauce standards submitted to the Codex Alimentarius Commission was rejected in 1998 because it was said to be too difficult to differentiate Japanese soy sauce from soy sauce produced by overseas manufacturing methods.
At present, the legal definitions of soy sauce in Japan are those stipulated by the Food Labeling Act and JAS standards. The definitions have hardly changed from the first definitions of soy sauce provided in the 1963 JAS standards. As the Food Labeling Act and Act on Japanese Agricultural Standards are domestic laws of Japan, soy sauce with questionable labeling in overseas markets is not subject to the application of law or to any penalty.
The theme of the 2017 revision of the Act on Japanese Agricultural Standards was the "establishment of diverse JAS standards that lead to the strengthening of competitiveness." More specifically, where the standards previously focused on the quality of products (agricultural, forestry and fishery products and foods), they now expanded to include production methods (process), handling methods (service, etc.), and testing methods. Along with that revision, procedures for streamlining new proposals were put into place so that JAS could work with production areas and business operators' strengths. (Fig. 2)
Regarding this revision, the soy sauce industry has been discussing the creation of new JAS standards with two objectives aimed at reinforcing competitiveness:

1. A proposal to honor small-scale business operators for their preservation of disappearing traditional production methods, and to help them continue into the future
2. A proposal to clearly market, based on legal definitions, the differences between original Japanese production methods and overseas production methods, as Japanese soy sauce is currently in a state where legally clear definitions of production methods are not stipulated

We expect that, in the future management of the soy sauce industry, JAS standards should not work as restrictions for soy sauce, but should serve as a framework for strategic growth.

New JAS Logo

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JAS Newly Established as Diverse JAS Leading to Competitiveness Reinforcement

○ As of February 2021, fourteen new standards have been established based on proposals from trade associations and other organizations. They include foods produced with the participation of persons with disabilities, organic food identification standards for restaurants, and chicken meat and chicken eggs from sustainable system. The relevant business operators have been obtaining JAS certification from accredited certification bodies.

○ In addition to the above, studies based on public and private collaborations to investigate many proposals are underway, aiming toward the establishment of a more diverse JAS, and leading to appeals based on strength.

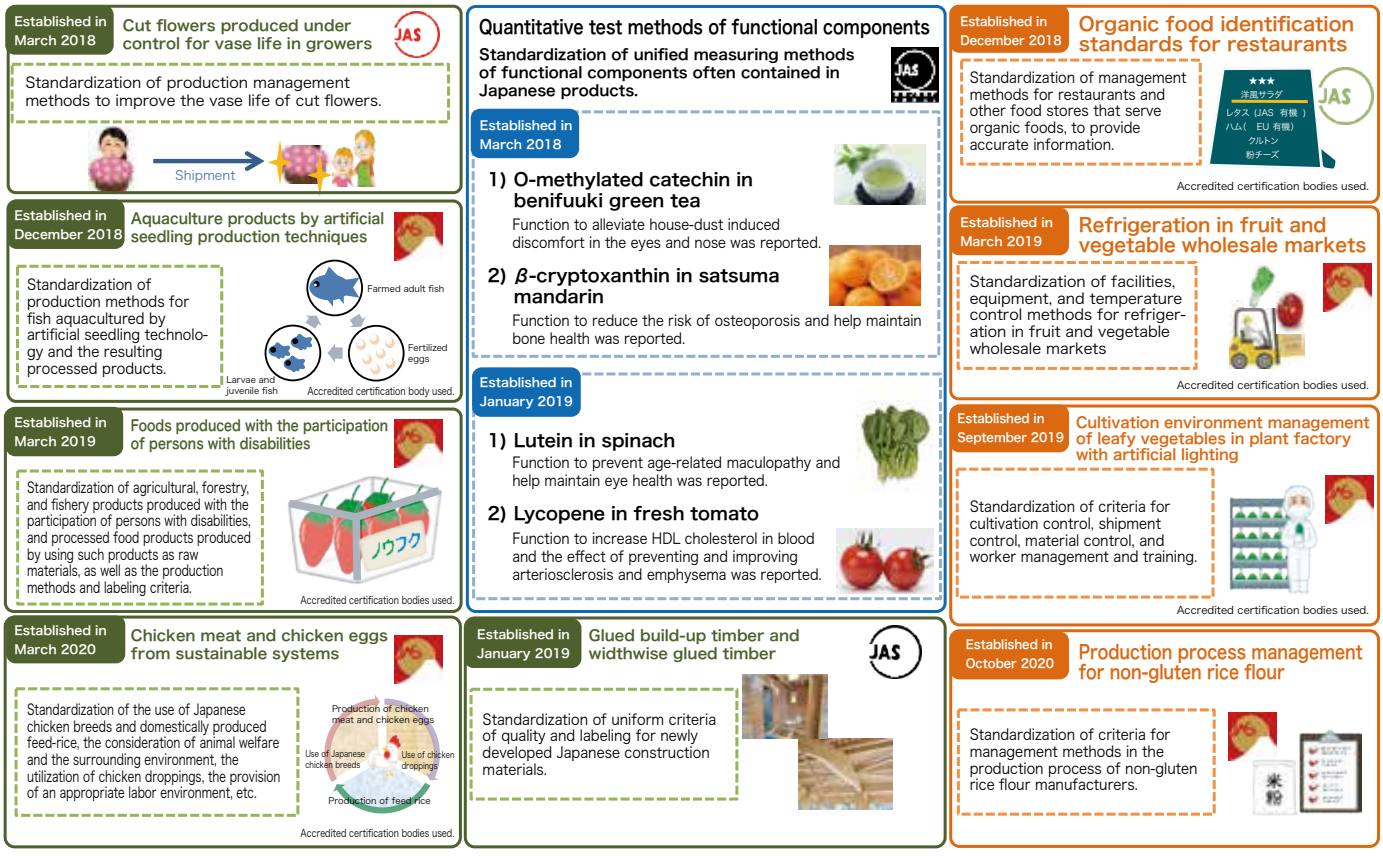

Fig. 2 From the Ministry of Agriculture, Forestry and Fishery's website