# How Sweet Soy Sauce Came About in Yamaguchi and Kyushu

-The Spread of Refermented Soy Sauce and Mixed Soy Sauce

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## Yamaguchi-born Saishikomi Soy Sauce

## 1. Introduction — The Birth of Kanro Shoyu

Sashimi soy sauce in Kyushu is characterized by its dark color and syrupy viscosity. During my research in various areas, I heard people saying, "This is *saishikomi*", referring to refermented soy sauce. *Saishikomi* soy sauce accounts for about 1% of national soy sauce production volumes, even less than the 2% accounted for by tamari soy sauce, which was introduced in the previous issue. However, unlike tamari soy sauce, which is only produced in central Japan, *saishikomi* is made all over the country.

Yanai City in Yamaguchi Prefecture is considered the birthplace of this variety, also called *kanro shoyu* by people in this area long familiar with it. Here, I will unravel the history of *saishikomi* soy sauce to try and understand its connection with the Kyushu region and why production spread throughout the country.

Saishikomi soy sauce uses kiage raw soy sauce instead of saltwater in preparation of the mash. The color is dark because it is matured over 18 months to about 2 years, and the umami content is high as the preparation is repeated twice. It is a luxury item because it takes time and effort to produce. When presented this by a Yanai brewer, Iwakuni Domain feudal lord Yoshikawa is said to have offered his compliment saying, "Kanro, kanro", meaning delicious, thus it came to be called kanro shoyu.

### 2. Yanaitsu Merchants and Shipping Port Development

One reason this soy sauce spread around the country from its birthplace in Yamaguchi Prefecture was the development of Yanaitsu Port– a leading port town on the Seto Inland Sea – and the success of Yanaitsu merchants. Located at the western edge of Iwakuni Domain (eastern present-day Yamaguchi Prefecture), Yanaitsu was already known as a port city in the middle ages (12<sup>th</sup>~16<sup>th</sup> century), and prospered further through trade on the Seto Inland Sea during the Edo period, earning its place as the economic center of Iwakuni Domain.

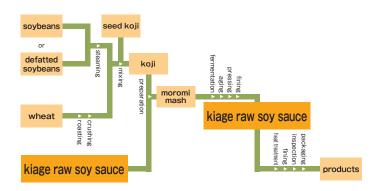
In addition to the main product of Yanai cotton, the region developed as a hub for canola oil, Japanese candles, salt,



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Saishikomi Soy Sauce Production Process (cited from the Soy Sauce Information Center)



Yanai City, Yamaguchi Prefecture

soy sauce, and other agricultural products. Today, the distinctive white walls of wealthy wholesale merchant houses remain in the city. With a river leading from the sea straight to storehouses in the city, wholesalers could unload directly from the riverbank.

According to the 1895 Takada's Kanro Soy Sauce Record (*Takadashi Kanro Shoyu Kiroku*), *kanro* soy sauce was invented during the 1780s by Takada Denbei, fourth generation head of the Takada family business called Tomoya, founded in the Edo period. The record shows that the Tokugawa Shogunate imposed taxes on Yanai soy sauce in 1854, suggesting the business was experiencing increased production volumes and prosperity.

The record also includes details on raw materials, showing soybeans came from neighboring villages, as well as Higo (Kumamoto Prefecture), Bungo (Oita Prefecture) and Isshu (Iki City, Nagasaki Prefecture); and wheat was mostly supplied from inside Iwakuni Domain, but also from Bungo and Shimabara (Nagasaki Prefecture). The ratio of external sources was 70.8% for soybeans and 34.8% for wheat. It is believed that ships filled with cotton fabrics and salt produced around nearby Hirao for export to Kyushu, were loaded with soybeans and wheat for the return trip to Yanai. Yamaguchi Prefecture faces the Seto Inland Sea, and has



Prize-winning kanro soy sauce at 3<sup>rd</sup> and 4<sup>th</sup> National Industrial Exhibition (1890 and 1895)

many of the oldest Irihamatype channeled salt-terrace fields, from which salt was shipped to Osaka, Hyogo and Kyushu. In the 1770s, about 50 years after the production of soy sauce began in Yanai, sales channels were secured in the neighboring counties of Oshima and Kumage, and expanded to other markets all around the Seto Inland Sea, including Aki (Hiroshima Prefecture) and Iyo (Ehime Prefecture). Because of these influences, saishikomi soy sauce is currently manufactured in Ehime Prefecture and Shodoshima Island.

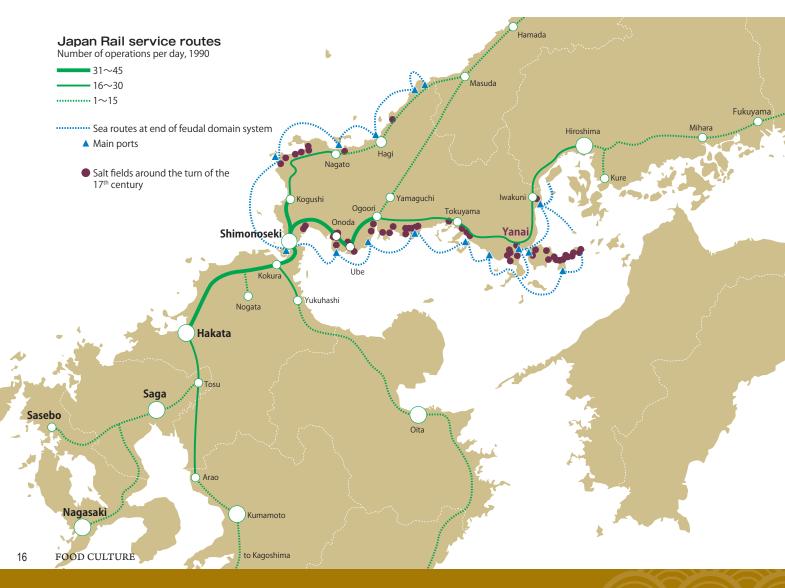
In addition, by 1908, Yanaitsu merchants had taken advantage of maritime trade to expand their sales networks all over the country, and overseas to Hawaii, Korea, Manchuria and Taiwan. Around the 1930s, many orders came from nearby major cities with orders to Kobe and Kyoto fulfilled by freight car and those to Osaka by ship.

#### **3.** Growing Railroad and Transportation Networks

Despite the opening of a railway between Hiroshima and Tokuyama in 1897, most freight traffic continued to rely on maritime transport until the early 1920s. As transportation networks gradually expanded and commercial activities flourished around railway stations and hubs on major roads, merchants from Hiroshima and the Kobe-Osaka area started doing direct dealings in Oshima County, the largest market for Yanai soy sauce. Yanai's wholesaling industry, which had relied on maritime transport, was hit hard, and the number of soy sauce breweries dropped from ten to the current two. However, awareness of saishikomi soy sauce and its delicious flavor spread thanks to a phrase in "Songs of Railways (Tetsudo Shoka)" released in 1900: "The product resounding in the port of Yanaitsu is kanro soy sauce ...". Brewing of saishikomi soy sauce later spread from Yamaguchi Prefecture to the Chugoku and Kyushu regions, and can now be found in various places nationwide.

It is possible that production of *saishikomi* soy sauce with a recipe using *kiage* raw soy sauce instead of saltwater emerged by coincidence around the country rather than spreading outwards from Yanai. The reason for this thinking is that some areas had already been making *saishikomi* soy sauce using *banshoyu*<sup>\*1)</sup> instead of saltwater. However, it must be said that the fact that *saishikomi* soy sauce became so well-known as to be produced and sold nationwide, is owing to the success of Yanaitsu merchants who exploited the maritime transportation network.

\*1 *Banshoyu* was the second or third liquid that emerged after saltwater was added to the soy sauce lees, a step that took place after the first liquid was extracted from the mash.



## 4. Links to Northern Kyushu

Shimonoseki City in Yamaguchi Prefecture, known by the saying "There's not a single ship that doesn't call in to the Port of Shimonoseki", developed as a base for commodity distribution, at the intersection of three major shipping routes: the Nishimawari Japan Sea route, the Saikai Kyushu route and the Seto Inland Sea route. The Kanmon National Highway Tunnel opened in 1958, and as shown in the figure, the ease of travel to and from Kyushu led to big increases in the movement of people and products. It is especially notable between Yamaguchi Prefecture and northern Kyushu as people can use a bus or train to go to work or school, or for shopping and leisure on weekends. A look at the flow of goods through financial/ bank records found in the history of Shimonoseki<sup>\*2)</sup>, the city has long had a strong relationship with Kitakyushu and Fukuoka cities in Fukuoka Prefecture, Nagasaki and Sasebo in Nagasaki Prefecture, and Hiroshima Prefecture, but a weak relationship with southern Kyushu, Shikoku, and the Sanin region on the Japan Sea side.

\*2 Shimonoseki City History Editorial Board, 2009, *Shimonosekishi: Hansei–Shisei Shiko* (Shimonoseki City History – Transition from Feudal Domain to Municipal City System), Meicho Shuppan.

According to interviews with soy sauce makers in Yanai City, the current production ratio is approximately 60% koikuchi soy sauce and 40% saishikomi (kanro) soy sauce. Around 70-80% is sold within Yamaguchi Prefecture, with the remainder shipped to other prefectures, such as Hiroshima, Osaka, Okayama, Hyogo, Tokyo, Fukuoka and Oita. In Kyushu, sales are limited to the north, as a preference for even sweeter flavor in southern Kyushu makes sales difficult. Interestingly, according to statistics from the Soy Sauce Information Center, many Kyushu soy sauces have been introduced to Yamaguchi Prefecture, showing mutual influence between the regions. (See page 20)

Producers in Saga Prefecture said in interviews that soy sauce in Saga is not as sweet as soy sauce in southern Kyushu, but sweeter than in Kansai. The key city of Karatsu faces the sea and is blessed with all kinds of seafood products. There, people simply won't accept soy sauce for sashimi that's not sweet. As sashimi soy sauce is mainly *saishikomi* soy sauce, locals typically use *usukuchi* or *koikuchi* soy sauce for simmered dishes of vegetables and the like, but sashimi soy sauce in simmered fish dishes as locals prefer to see color right through.



Geography education: "Songs of Railways (*Tetsudo Shoka*) (2<sup>nd</sup> volume Sanyo and Kyushu 24)", written by Takeki Owada, 1900

According to the owner of a Yamaguchi Prefecture kanro soy sauce maker, the key to its deliciousness is the long aging process, yielding a mild saltiness and mellow flavor. The salt content is around 15%, but when I tried it, it didn't taste salty. In cooking, it is suitable for Aradaki boiled fish with bones, because you can achieve dark color without it getting too salty. The expensive price tag means

locals mostly use *koikuchi* soy sauce in their cooking, and *saishikomi* soy sauce is mainly used by professional chefs. However, in an interview with a 30-year-old woman from Yanai, who is living in Shimonoseki, she said, "Fish just tastes better with *kanro shoyu*. I buy it whenever I return home. Sweet soy sauce works in cooking too." Today, *saishikomi* soy sauce is loved by people in various forms, having made its way into non-conventional foods such as butter cakes and seasoning sprinkles for rice.

## Sweet Mixed Soy Sauce

#### 1. Pre-war Products Not Sweet – The Impact of Mixed Soy Sauce

In the survey, I asked makers I visited in Yamaguchi and Kyushu to describe the flavor of their company's soy sauce, and many responses included expressions like umami with sweetness, mild saltiness, and a combination of rich and sweet. The production ratio of mixed soy sauce<sup>\*3)</sup> is high in this area, as described later (see Ehara, p22). Even where makers are producing large volumes of *honjozo* regular fermented soy sauce, those products are destined for Kanto and other places outside the prefecture. For locals they sell mixed soy sauce.

\*3 There are three soy sauce production methods (national production ratios in brackets): *honjozo* regular fermenting (about 90%), mixed fermenting (less than 1%), and mixture (about 10%). While some Kyushu sweet soy sauce is made by the mixed fermenting method, most comes under the mixture method category. The mixture method starts with either regular or mixed fermenting method soy sauce and adds amino acid solution, enzyme-hydroloyzed seasoning solution, or a fermented version of the latter.

Mixed soy sauce became popular during wartime shortages (see Tachi p3). Production stalled when raw materials were difficult to obtain, so the introduction of amino acid solutions helped ensure a steady supply of soy sauce and to supplement umami flavor. This amino acid solution had a unique odor that affected the quality of soy sauce, so molasses and other substances were initially added to suppress that odor. Later, post-war starvation meant people sought sweetness, and it is thought that the inclusion of ingredients such as licorice and glucose made mixed soy sauces even sweeter.

In my interviews, I heard from a soy sauce maker in Fukuoka Prefecture that in 1942, during wartime economic controls, it was able to secure raw materials after its factory was put under the control of the army and navy military stores division. This allowed the maker to maintain quality and ship its *honjozo* soy sauce to the military. At the end of the war, however, their soy sauce was deemed too salty and failed to sell well. After adjusting the taste closer to the sweet mixed soy sauces manufactured by other makers, it was able to sell its soy sauce again.

According to a 1944 publication called *Issues Related to Miso and Soy Sauce in the Five Cities of Kitakyushu*<sup>\*4)</sup>, population increases in the Kitakyushu area caused shortages in miso and soy sauce, which were covered by imports from Noda and Shodoshima Island. In addition, according to records of interviews on diets in each prefecture found in the Complete Works on the Japanese Diet<sup>\*5)</sup> and a look at the process for making soy sauce in Kyushu homes around the 1930s found in a publication on Kagoshima cuisine<sup>\*6)</sup>, we see no great differences from other regions. Interviews in this survey also confirmed that soy sauce before the war was not as sweet as it is now. In other words, we can say that the appearance of Kyushu's sweet soy sauce as we know it today was greatly influenced by the birth of mixed soy sauce.

- \*4 Fukuoka Prefecture Chamber of Commerce and Industry (ed.), 1944, *Kitakyushu Gotoshi ni Okeru Miso, Shoyu no Mondai* (Issues Related to Miso and Soy Sauce in the Five Cities of
- Kitakyushu). \*5 Nihon no Shokuseikatu Zenshu (Verbatim Account on Dietary Life
- in Each Prefecture), Nobunkyo Shuppan, 1993 \*6 Imamura, T., 1999, Kagoshima no Ryori (Kagoshima Cuisine),
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#### 2. Sweetness Preferences – A Foundation for Regional Differences

In addition to the culture of associating sweet with delicious (introduced in FOOD CULTURE No. 26, 2016), my survey interviews and document research show the preference for sweet soy sauce came from a hunger for sweetness in reaction to post-war shortages and the makers' desire to differentiate their products, among other factors. It also became clear that the degree of sweetness varies by region. From here, I will outline the distinctive characteristics of areas where soy sauces are especially sweet.

Sugar was brought to Nagasaki through trade with the Dutch during the Edo period, and carried on the Nagasaki Kaido highway through to Saga then Kokura, in Kitakyushu, before being sent by ship or over land to Kyoto, Osaka and on to Edo via Yamaguchi Prefecture. When 8<sup>th</sup> Shogun Tokugawa Yoshimune took measures to promote sugar production in Japan, it spread throughout the country. Yamaguchi Prefecture commenced sugar production in 1751, and the distinctive feature of this area was its possession of the technology needed to produce white sugar. Whether this history plays a part is unclear, but I did hear people say during my research that while the preference for sweetness in Yamaguchi is not as not strong as Kyushu, it is stronger than in Hiroshima and Kansai.

Dotted with many Chinese-style Obaku Sect Buddhist temples, the Nagasaki Highway, also known as Sugar Road, is the birthplace of many confections and dishes using sugar. From the late 1800s to the early 1960s, the coal mining industry flourished in the region, and those with cash income<sup>\*7)</sup> are said to have demanded delicious, that is, sweet food. Situated along the highway and formerly under the direct jurisdiction of the Shogunate, in Omura City, Nagasaki Prefecture, people today continue to favor soy sauce that is sweeter and more viscous than in other areas. The soy sauce of Hita City, Oita Prefecture, which was also under the Shogunate's direct control, is among the sweetest in the prefecture. As territory of the Shogunate, the economic wealth and ease of obtaining sugar is thought to have influenced these outcomes.

\*7 Prior to this time, households were self-sufficient, making their own supplies of miso and soy sauce, but the existence of cash caused a shift to a consumption-based lifestyles, which in turn promoted the spread of sweet mixed soy sauce.

Before the war, much sugar cane cultivation occurred along the coast of the Hyuga-nada Sea in Miyazaki Prefecture. Soy sauce breweries were also located on the coast from Nobeoka City to Nichinan City. The soy sauce in Nichinan City, which is close to Kagoshima Prefecture, is particularly sweet, unlike those from other areas in the prefecture. Nichinan City has thrived on bonito fishing since the Edo period, producing katsuo-bushi, dried bonito shavings as a specialty local product. The city's historic Odotsu Port is still a base for fishing bonito and longline tuna fishing. Fishing industry boats depart the port stocked with soy sauce produced at Odotsu, liking the sweeter varieties, and many sailors visiting for work from Miyagi and other areas in the Tohoku region apparently take it home as a souvenir. In the 17<sup>th</sup> century, sugar cane was mainly cultivated in the Ryukyu and Amami regions (present-day Okinawa and Kagoshima, respectively), and Satsuma Domain (now Kagoshima) earned a stipend by making brown sugar from sugar cane. In the Edo period Satsuma Fudoki (records of local cultures) it says, "The noodles served on a colander are good. The soup is too sweet, hard for Edoites to eat." Another excerpt says, "Seasonings may be sweet here but things are slightly salty in the villages, and soups have plenty of ingredients inside." At the time, sugar was a valuable commodity for earning foreign currency, so it wasn't often used in villages in this region, but we can understand from this excerpt that it was used in cities as a sweetener. While fading now, there remains a culture of hospitality in this region for serving guests tea with sugar, sweet pickles, or rice topped with green tea flavored with brown sugar.

In Kagoshima Prefecture, there is a phrase "Satsuma's large lantern", said to represent the temperament of people in Satsuma (former Kagoshima), who act following the lead of the person with the large lantern. There is strong cohesion within the prefectural soy sauce cooperative association, which had been conducting quality control according to independently established standards before the JAS law came into force. In 1956, one maker grew very popular with the development of a sweet soy sauce intended to get children enjoying eating fish. High volumes of soy sauce were being imported from other prefectures at the time, and it is said that sweet soy sauce spread rapidly among local makers wishing to differentiate.

As described above, the foundations were there in Yamaguchi Prefecture and the Kyushu region for acceptance of and preference for sweetness, and even today, the prefectures of Kyushu occupy the top spots for the highest levels of sugar consumption across the country. Saccharin, a sweetener used in mixed soy sauce, is barely used elsewhere, but many makers throughout Kyushu use it because there is no substitute for its strength in sweetening soy sauce. Even so, there are differences across Kyushu in the amount used: while in the north the amount of saccharin added is only about half the upper limit set in the Ministry of Health, Labor and Welfare saccharin usage standards, in Kagoshima Prefecture, it is added right up to the upper limit.

"Nagasaki is far" is a euphemism for the lack of sweetness in Nagasaki dishes, but it is also said that "Ryukyu (Okinawa) is far" in Kagoshima. What we can see is differences in the kind of sweetness familiar to people in each area: in Nagasaki, Saga, and Fukuoka (northern Kyushu), people had a taste for sugar imported from the Dutch; in Kagoshima and southern Miyazaki, people were accustomed to the brown sugar of Ryukyu and Amami. This may also have contributed to the different levels of sweetness in soy sauce.



Excellent Soy Sauce Award (Certificate with Ori-tsuru Mark), Kagoshima Prefecture

## 3. Preference for Light Color

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In Yamaguchi Prefecture and the Kyushu region, people feel that food tastes salty if the color is dark, so there is a preference for both *koikuchi* and *usukuchi* soy sauce to be lighter in color here. According to interviews with four soy

sauce makers in Kagoshima, usukuchi sells better to locals than koikuchi. Usukuchi soy sauce is used to make soup for udon, somen, and ramen noodles, as well as in simmered vegetable dishes, but as a mixed soy sauce, it has strong umami and seems to be used more like shiro-dashi white stock seasoning. In addition, I was told that some places in Miyazaki and Kagoshima prefectures use usukuchi for pickles, and that in some island regions of Nagasaki, such as Tsushima and Amakusa, usukuchi is even used for sashimi. Having said that, many households in these areas typically have a set containing koikuchi, usukuchi and sashimi soy sauces. In interviews in Yamaguchi Prefecture, I even heard that people choose which soy sauce to use depending on the fish variety: ponzu and soy sauce for sashimi of white fish; daidai citrus for fugu puffer fish; koikuchi for red-fleshed fish; sweet soy sauce and saishikomi soy sauce for blue-backed fish varieties; and koikuchi soy sauce to make simmered fish dishes.

#### Regional Differences Within Prefectures and Transfer of Products in Yamaguchi and the Kyushu Region

This is a summary of Yamaguchi Prefecture and the Kyushu region, outlining regional differences within each prefecture, and offering an overview of soy sauce trade to and from Yamaguchi and Kyushu, based on interviews with soy sauce makers.

- (1) Overall, Yamaguchi Prefecture soy sauces are not as sweet as Kyushu varieties, of which Kagoshima products are said to be the sweetest. The Chugoku and Shikoku regions import large volumes from Kyushu (Oita, Saga, Fukuoka).
- (2) Yamaguchi Prefecture: soy sauce around Hagi City on the Japan Sea side is sweet. Exports of soy sauce from Shimonoseki to Kyushu and Yanai to Hiroshima are high.
- (3) Fukuoka Prefecture: soy sauce from Kurume City in the southwest Chikugo area is somewhat sweeter than those from other areas. Within Kyushu, Kurume products are shipped to Saga and Kumamoto prefectures.
- (4) Saga Prefecture: no regional differences in sweetness within the prefecture. While many soy sauces are imported from Oita Prefecture, some are exported to Yamaguchi Prefecture.
- (5) Nagasaki Prefecture: soy sauce from Omura is sweet. Only manufacturers in Nagasaki City continued to produce *honjozo* soy sauce post-World War II; the remainder produce mixed soy sauce. Shipments within the region are to the northern Kyushu prefectures of Fukuoka and Saga.

- (6) Kumamoto Prefecture: soy sauce from the Amakusa area in the south is sweet. According to the history of Shimabara City, Kumamoto previously imported soy sauce from Shimabara, Nagasaki Prefecture, on the other side of the Ariake Sea. Conversely, I heard that soy sauces from Kumamoto are currently exported to Nagasaki, Saga, and Fukuoka prefectures. I did not hear much about the use of sashimi soy sauce in surveys targeting the general public.
- (7) Oita Prefecture: Hita soy sauce is sweet. There are two large cooperative associations and many shipments are sent all over the Kyushu area, as well as Yamaguchi, Ehime and Hiroshima prefectures.
- (8) Miyazaki Prefecture: soy sauces in the south are sweet. According to interviews with locals and restaurant owners serving local dishes along the coast from Nobeoka City to Miyazaki City, the influence of neighboring Oita Prefecture is clear in the frequent use of Oita soy sauce. Miyazaki soy sauces, on the other hand, have typically been exported not only to Kagoshima and Kumamoto prefectures within Kyushu, but also outside the region to Kagawa Prefecture.
- (9) Kagoshima Prefecture: although there are not many regional differences, soy sauce on the mountain side is slightly saltier. Some exports go to one area of Miyazaki Prefecture. Chicken sashimi and rare chicken *tataki* with sashimi soy sauce are dishes originally from the mountain side of Miyazaki and Kagoshima that spread to coastal areas around the 1980s.



Burdock root kimpira on Tsushima Island (usukuchi soy sauce used to avoid color)



Yellowtail sashimi eaten with generous amounts of soy sauce (left: sashimi, right: koikuchi)



Gu-zoni in Shimabara, Nagasaki Prefecture - a dish of chicken and vegetables cooked in usukuchi soy sauce. Thought to have been brought along with somen noodles by Shodoshima immigrants around the mid-17<sup>th</sup> century.



Rare chicken tataki (with sashimi soy sauce and ginger)

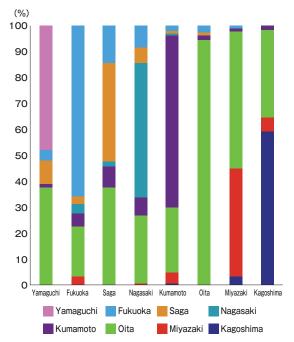


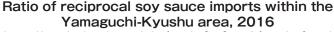
Miyakonojo Oden, Miyazaki Prefecture (post-World War II dish featuring chicken soup, soy sauce, and sweetness from cabbage)



Puffer fish sashimi in Yamaguchi (with daidai citrus and soy sauce)

Soy Sauce in Yamaguchi and Kyushu





(created by author based on statistics from the Soy Sauce Information Center)

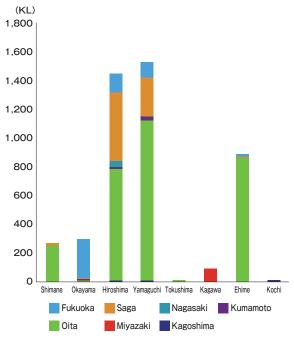
People in these areas often eat white fish such as puffer fish and flounder. White fish is rich in histidine and has lower amino acid content than red fish, so the serving style is totally different: live white fish is broken down and served immediately to enjoy the full, almost crisp texture, whereas red fish is rested for several days before serving to further increase amino acid content. Similarly, rare chicken *tataki* and chicken *sashimi* are served fresh, so the adenosine triphosphate (ATP) in the muscle is not converted to inosinic acid, limiting the level of umami. Therefore, a mixed soy sauce with strong umami and sweetness would likely be preferred for these dishes.

#### 4. Conclusion

Today's sweet soy sauce in Yamaguchi and Kyushu came about and spread in popularity owing to the cultural climate, a shortage of supplies due to war, the spread of technology for mixed soy sauce production, and the transition from homemade and selfsufficient lifestyles to mass production and mass consumption.

Mixed soy sauce, made by adding amino acid solution to honjozo soy sauce, has unique umami and depth owing to the amino acid solution. Many companies used to make their own amino acid solutions in order to control the flavor and determine the taste of the region, but in recent years they are increasingly requesting specialized manufacturers to create a flavor unique to their own company. Mixed soy sauce has a distinctive smell from the amino acid solution, which is not desirable in some areas. However, in interviews in Kumamoto Prefecture, I was told this smell is one of the keys to delicious flavor in soy sauce. While sweet mixed soy sauce may not sell well in areas like Kanto where honjozo brewing is mainstream, feedback even from these areas is apparently very positive when it comes to gifts of seasonings and processed sauces based on mixed soy sauce.

Over time, the traditional seasoning soy sauce took shape as the taste of each region, gradually changing with technological progress, the flow of goods and human interactions. Even now, it is part of new trends all the time. I would like to close by expressing my heartfelt gratitude



Quantity and origin of soy sauce imports from Kyushu into the Chugoku and Shikoku regions, 2016 (Unit: kiloliters) (created by author based on statistics from the Soy Sauce Information Center)

to the soy sauce makers who cooperated in our survey, as well as interview collaborators and local librarians in every region we visited.

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