



# The Story of Shochu

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Featured  
article

## Shochu 1 (Summary)

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Shochu is a distilled alcoholic beverage unique to Japan. Unlike wine, beer or sake, the shochu making method includes a distillation process like whisky and gin making. Based on the difference in the distillation process, shochu is classified as either pot distillation shochu or continuous distillation shochu.

### Pot distillation shochu

Pot distillation shochu (simple system distillation Japanese spirits) is a traditional type of Japanese spirit made from various ingredients such as rice, barley, or sweet potato. Honkaku shochu (authentic shochu) and awamori are included in this category. The resulting fermented mash is distilled using a pot still. And it has an alcoholic content of 45% alcohol by volume (ABV) or less.

### Continuous distillation shochu

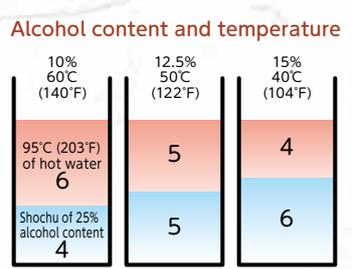
Continuous distillation shochu (continuous distillation Japanese spirits) is spirit made from a fermented mash that has been distilled in a continuous/column still. It has an alcoholic content of under 36% ABV.

## How to enjoy shochu

### How to drink

#### Oyuwari (shochu with hot water)

The ratio of hot water to shochu is generally 4:6, 5:5, or 6:4. Shochu is warmed by this dilution, and it enhances the evaporation of aroma



compounds. You can enjoy the full flavor and mellow taste of shochu.

#### Mizuwari (shochu with cold water)

Put several pieces of ice into a glass first. Then, pour as much shochu as you'd like, and top up with water. After lightly stirring, cold and refreshing shochu with a smooth flavor profile is ready to be enjoyed. A mix of around 10-15% ABV is recommended. For mixing ratio, the figure below left (Alcohol content and temperature) may be useful.



#### Straight or on the rocks

To fully enjoy the flavor of shochu, drinking it straight or on the rocks is recommended. After enjoying the aroma of shochu from the glass, sip a small amount (1-2 mL) of shochu and taste it by spreading it over your tongue. Drinking water as a chaser is also recommended.

#### Shochu with soda/ shochu-based cocktail

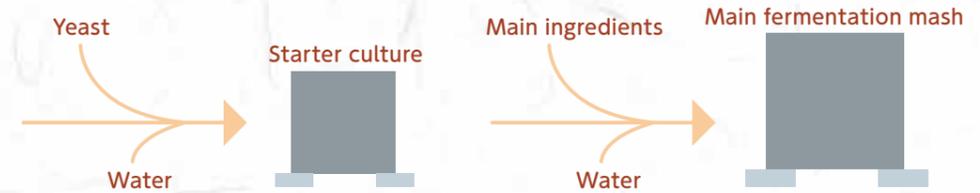
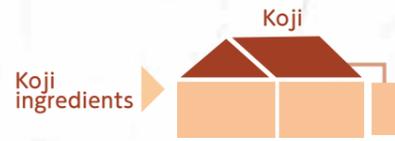
Shochu with soda is another choice to enjoy a refreshing style of shochu. Recently, several kinds of shochu-based cocktail have been created.



## Shochu and food pairing

Generally, the flavor of shochu is not so strong and goes well with many kinds of food. For instance, shochu refreshes your mouth after eating greasy food. Therefore, shochu is enjoyed with food like wine and sake.

# How to make shochu

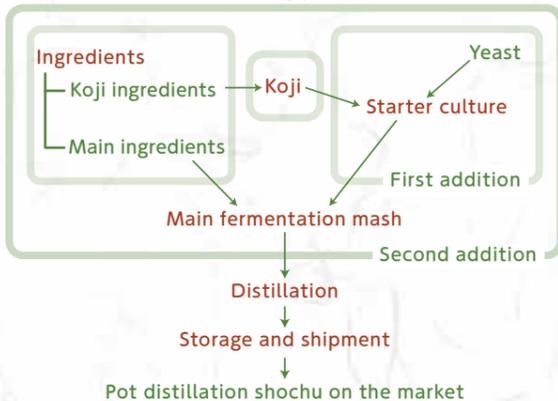


## Pot distillation shochu

The typical method for making pot distillation shochu is as follows:

1. Koji making  
Koji is a culture of a special kind of fungi, called koji mold, on grains. Koji is used to break the starch contained in the main ingredient into sugars.
2. Starter culture  
To grow yeast for fermentation, a starter culture is prepared with koji, water, and a small amount of yeast.
3. Main fermentation mash  
The main ingredient is added to the starter culture, and fermentation continues.
4. Distillation  
The fermented main mash is put into a pot still for distillation, and shochu is made.
5. Storage and shipment

### Overview of shochu making process



## Ingredients

Koji is made with rice in many cases, and in some cases with barley or other ingredients. For the main fermentation mash, various main ingredients including cereal grains, sweet potatoes, and so on may be used. Shochu is named after the main ingredient. For example, shochu made from sweet potatoes in the main fermentation mash is called sweet potato shochu even if rice is used for its koji making. It's important to note that main ingredients are steamed before koji making and fermentation.

## Koji

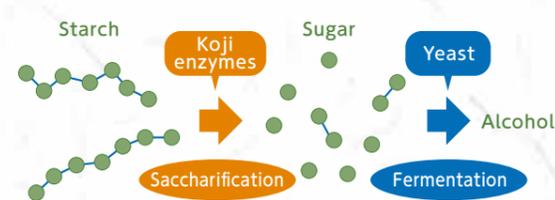
### The role of koji

Koji produces many kinds of enzymes. These enzymes break down starch into sugars. This process is called saccharification. Since yeast can't ferment starch, the starch in the main ingredients (rice, barley, sweet potato and others) has to be saccharified into sugar first, and then yeast ferments it into alcohol.

In case of beer and whisky, enzymes produced by malt play the role of saccharification and fermentation follows as another separate process. In the case of shochu, where koji is used for saccharification, both saccharification and fermentation simultaneously take place in the same vessel.

Another role of koji is the production of citric acid, which keeps the starter culture and main fermentation mash acidic. This role is explained in the next section (The varieties of koji mold).

### Saccharification and fermentation in main fermentation mash of shochu



### The varieties of koji mold

Three varieties of koji mold are used for shochu making: (1) black, (2) white, and (3) yellow koji mold.

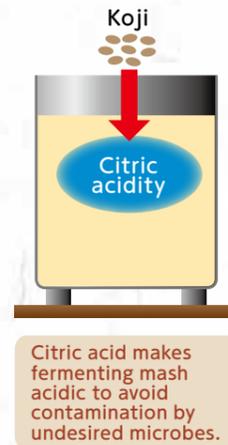
Black and white koji molds are in the same category of fungi and have mainly been used for shochu making since the beginning of the 20th century.

On the other hand, yellow koji mold has long been used for sake making, and it was used extensively to make shochu as well up until about 100 years ago. In recent years, some shochu distilleries are once again using yellow koji mold with the aim to diversify their range of products.

### The varieties of koji mold (from left: black, white, and yellow koji mold)



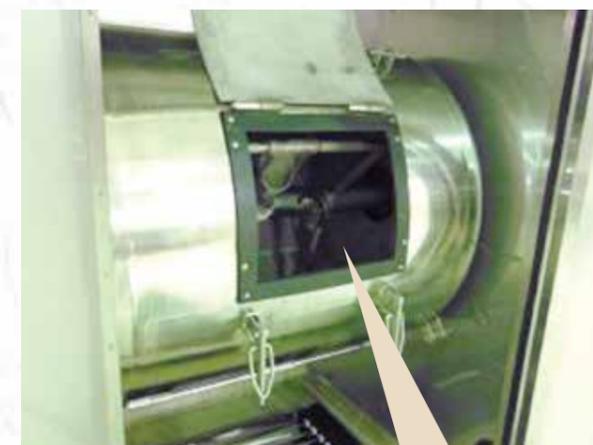
One of the main reasons to use black and white koji molds for shochu making is their high production of citric acid. Thanks to citric acid, the starter culture and main fermentation mash of shochu are kept acidic, which is effective to avoid contamination by undesired microbes. This is an important point when making shochu in the southern and warmer regions of Japan, such as Okinawa Prefecture and Kyushu Island.



### Koji making

Koji is made with rice in many cases, and in some cases with barley or other ingredients. In case of rice koji making, rice grains are firstly washed and steeped in water before steamed and cooled down to desired temperature. Then the koji mold spores are sprinkled over the grains and mixed well. The mixed grains are kept at 40-42°C (104-108°F) to grow koji mold, and then the temperature is lowered to 30-35°C (86-95°F). This lower temperature is necessary to induce the production of citric acid. This process takes about 2 days.

Rotating drum for koji making: This type of machine is widely used in shochu distilleries.



Rice is washed in this rotating drum. On the next day, rice is steamed and the koji making process takes place inside the drum under controlled temperature.

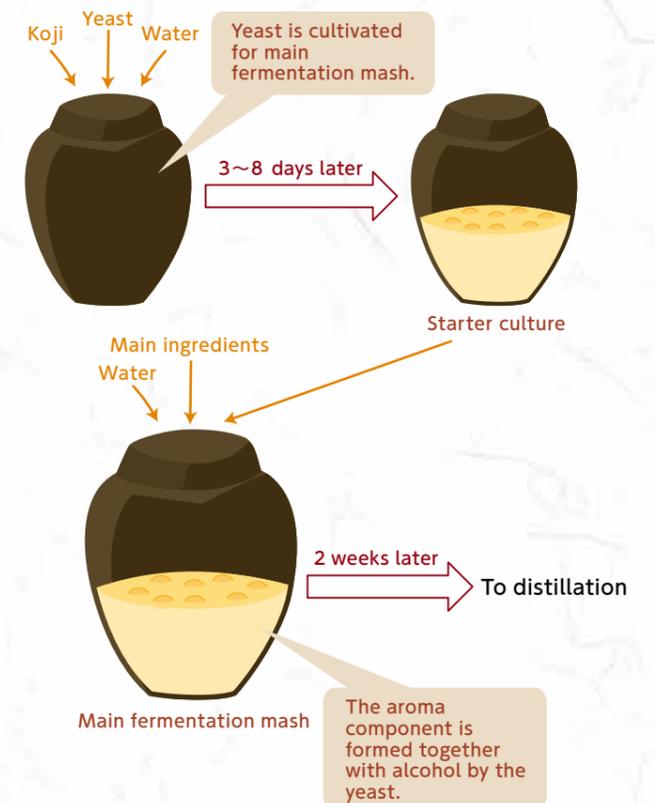
## Starter culture: To grow yeast

For the starter culture, koji, water, and a small amount of yeast are mixed into a tank or earthenware jar. The starch contained in the koji ingredients is saccharified by koji enzymes, and the resulting sugars are consumed by yeast through fermentation. The citric acid in the koji prevents the growth of contaminating microbes, whereas yeast is resistant to acidic conditions. This fermentation continues for 3-8 days at around 30°C (86°F), allowing the yeast to thrive. This process is known as the starter culture.

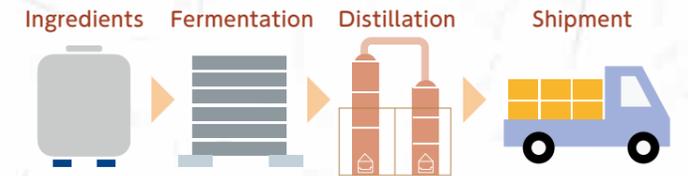
## Main fermentation mash: Saccharification and fermentation

The main ingredient is steamed, cooled down, and added to the starter culture together with water. Then, saccharification and fermentation take place in the mash. Its maximum temperature reaches 28-32°C (82-90°F), and fermentation lasts around two weeks. The final alcohol content of the main fermentation mash is approximately 14-20%.

### Preparation of fermentation mash



# How to make shochu



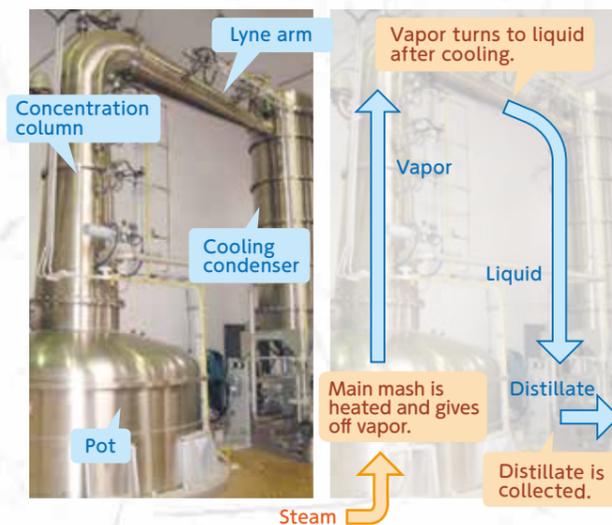
## Distillation

After fermentation, the main mash is distilled. Alcohol and various volatile aroma compounds, as well as water, are isolated from the main mash, and shochu is made. Thus, the distillation process turns the mash into a "spirit".

The fermented main mash is transferred to a pot still and heated. As the temperature of the mash rises, alcohol and other volatile compounds begin to evaporate. The vapor is cooled down while it passes through the concentration column, lyne arm, and cooling condenser, and it is collected as distillate. Various volatile compounds are separated and condensed due to the differences in boiling temperature or volatility. For example, the boiling temperature of water is around 100°C (212°F), while that of alcohol is around 78°C (172°F). Thus, alcohol vaporizes at a lower temperature and is concentrated through distillation. The alcohol concentration in the main mash is around 14-20%, and it is 37-43% in the distilled shochu.

Most whisky goes through two or more distillation cycles. In contrast, most pot distillation shochu is distilled only once in a pot still. Therefore, shochu contains various flavor compounds derived from the mash, which make up the characters of individual shochu brands.

Pot still (left) and overview of distillation (right)



In addition to a traditional distillation method, which is carried out under normal atmospheric pressure (atmospheric distillation), a new method has been developed, where distillation is carried out under reduced pressure (vacuum distillation).

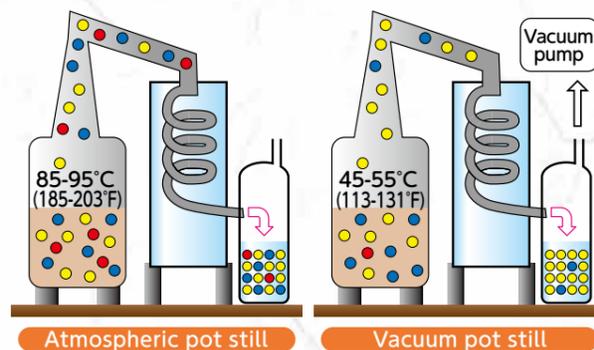
## Atmospheric distillation

Atmospheric distillation is performed under atmospheric pressure. The main mash is boiled at so high temperature that most of components easily transfer to the distillate. In addition, chemical reactions such as decomposition and synthesis are enhanced at a higher temperature. Thus, new compounds are generated during the distillation process, and some of them are transferred to the distillate. Therefore, shochu made with atmospheric distillation features full flavors and richness.

## Vacuum distillation

It is performed with reduced pressure inside the pot. At a lower barometric pressure, as at the summit of a high mountain, liquid boils at a lower temperature. Thus, by using vacuum distillation the shochu contains fewer flavor compounds, and only those that evaporate easily (e.g. esters) escape from the still along with alcohol and water. Therefore, vacuum-distilled shochu has lighter flavor compared to atmospheric-distilled shochu.

The difference between atmospheric distillation and vacuum distillation



- Component easy to evaporate
- Component hard to evaporate
- Component generated by heating

Either of the two methods can be applied depending on the characteristics of the final product and consumer preferences. Some products are produced by blending shochu made with the atmospheric method and that with the vacuum method. In addition, an improved vacuum still which employs intermediate pressure has been developed and contributes to the diversification of shochu.

## Storage, shipment

Freshly-distilled honkaku shochu and awamori usually have a slightly pungent odor and a coarse and tingly sensation on the tongue. Also, they contain some oily compounds derived from the ingredients. These oily compounds are likely to turn into oxidized oil with an unpleasant smell. Thus, the oily compounds are removed by skimming or filtration before storage. Also, precautions against oxidation are taken during storage and maturation. The smell and palatability of freshly distilled shochu become delicate and mellow during maturation.

The alcohol concentration of shochu after distillation is 37-43%. However, it is usually reduced to 20-25% with water before bottling and shipment. Generally, shochu is matured in stainless steel tanks, not barrels, and shipped within a year after distillation. Thus, the maturation period of shochu is much shorter than whisky and brandy. One possible reason for this short maturation period is that most shochu is characterized by the flavor derived from its ingredients.

Some special kinds of shochu are, of course, aged in earthenware jars or wooden barrels. When shochu is stored in earthenware jars for a long time, it acquires a mellow aroma and flavor due to contact with oxygen and catalytic action via the minerals contained in the earthenware jars.

## Classification of pot distillation shochu

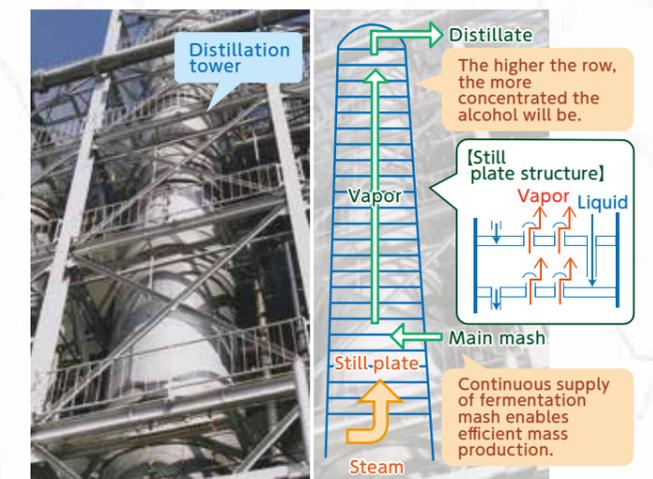
Pot distillation shochu is classified into the following five categories:

1. Shochu made from some kind of grains or tubers and roots and their koji (e.g., rice shochu, barley shochu, or sweet potato shochu)
2. Shochu made from grain koji only (e.g., awamori)
3. Shochu made from sake lees (sake lees shochu)
4. Shochu made from brown sugar and rice koji (brown sugar shochu)
5. Shochu made from ingredients other than 1-4. For example, shochu made from sesame, pumpkin, or carrot can be labeled "honkaku shochu."

## Continuous distillation shochu

The continuous still was invented by Mr. Robert Stein in Scotland in 1826 and was improved by Mr. Aeneas Coffey in Ireland in 1831. This technique is used for the production of grain whisky and vodka. It was introduced to Japan, and a new type of shochu, continuous distillation shochu, was launched around 1900. Continuous distillation shochu is often made from molasses or corn, but it has a neutral character. It is used to make liqueur with fruits, such as plum (*umeshu*), as well as for cocktails. Even though they are both called "shochu" in Japanese, pot distillation shochu is completely different from continuous distillation shochu due to how it is made.

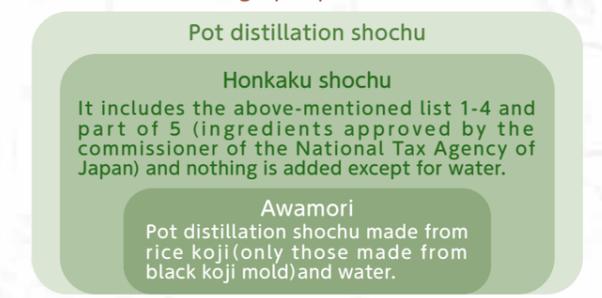
Continuous still (left) and a distillation overview (right)



The same result as redistilling in a pot still multiple times.

Honkaku shochu and awamori are classified in the pot distillation shochu group. If the products implement certain standards, they are granted to be labeled "honkaku shochu" or "awamori." A summary is as follows.

The relationship between honkaku shochu and awamori in the category of pot distillation shochu



# Flavor characteristics based on main ingredients

## Sweet potato shochu

Sweet potato shochu has a distinctive sweet flavor, however, its flavor character varies widely depending on the type of sweet potato (and many other factors). Sweet potato shochu is often enjoyed by dilution with hot water, cold water, or on the rocks. Its distinctive flavor and mild sweetness can be enhanced by warming.



Sweet potato

## Barley shochu

Barley shochu has a delicate and specific aroma of barley with a mellow and sweet profile. The flavor of barley shochu varies based on still types: vacuum distillation makes it light and smooth, while atmospheric distillation makes the savory aromas more intense and balanced with the taste. Depending on the type of shochu, it can be served in various manners such as with hot water or with cold water.



Barley

## Rice shochu

The aroma of rice shochu is somewhat similar to that of freshly cooked rice, which complements the savory notes in food. The variety of flavors — from rich flavors of atmospheric distillation, flowery and light aromas of vacuum distillation to particularly matured flavors of earthenware jar- or barrel-aged ones — enables us to appreciate attractive variation in rice shochu.

Rice shochu brands with richer flavors (e.g. atmospheric-distilled) are often enjoyed with hot water whereas those with lighter flavors or flowery aroma are usually enjoyed on the rocks.

## Awamori

Awamori is a specialty of Okinawa Prefecture, and is known for its rich flavor. In addition to a fruity aroma similar to apples and bananas, awamori has a savory flavor caused by atmospheric distillation. Awamori contains a relatively large amount of oily components contributing to deep and rich flavors. Furthermore, *kusu*, which means awamori matured for at least 3 years after distillation, has its own distinctive aroma similar to sweet vanilla and mellow flavors.

It is recommended to drink *kusu* straight, however, other types of awamori are best enjoyed on the rocks with water.



Indica rice (left) and Japonica rice (right): long-grained and hard. Indica rice has been used for awamori making.

## Buckwheat shochu

Buckwheat shochu has a distinctive fresh aroma of buckwheat and a light flavor. Each drinking style offers varying savory, pleasurable experiences: brisk aroma on the rocks, mild taste with water, or a gradually-spreading savory taste with hot water. Recently, it has been suggested that buckwheat shochu with soda is also worth a try. In addition, at buckwheat noodle restaurants, shochu is sometimes blended with reserved hot water after boiling buckwheat noodles to create an enjoyable drink.



Buckwheat seeds

## Brown sugar shochu

In general, brown sugar shochu is characterized by the sweet aroma of brown sugar with slightly acidic and oily flavors like coconut. It's unexpectedly light on the palate, contrary to the aroma. Brown sugar shochu is most favorably enjoyed by diluting with water to enhance its unique flavor and mellowness, or on the rocks. Brown sugar shochu is a specialty of (and is only allowed to be made in) the Amami Islands, Kagoshima Prefecture.



Brown sugar

## Sake lees shochu

*Kasutori* shochu, which is a traditional type of sake lees shochu, has complex flavors such as a hint of rice husk, dry grass, and the sweet aroma of sake lees. In addition, *kasutori* shochu distilled using the steaming basket method still has a hint of woody aroma. These distinctive flavors are very intense immediately after distillation, but the time during storage appropriately harmonizes these flavors before the shochu is sent to the market. *Kasutori* shochu is usually drunk cold or on the rocks. It is also used to make plum liquor.

Another type of sake lees shochu is made from the mashing (*kasumomitori*) method and is milder than *kasutori* shochu. When sake lees from "*ginjo-shu*" are distilled under vacuum pressure, the shochu has a fruity aroma similar to that of *ginjo-shu*. These types of sake lees shochu are often enjoyed cold or on the rocks.

### Shochu history

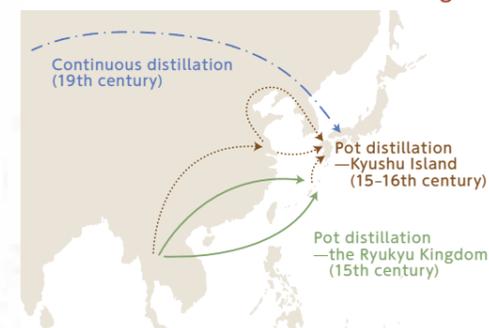
The shochu making techniques are considered to have arrived in the Ryukyu Kingdom or present Okinawa Prefecture, Japan, from the Kingdom of Siam (modern-day Thailand) through the route between Southeast Asia and China sometime during the 15th century. There are a number of theories as to how shochu was introduced to Kyushu Island. Shochu is said to have arrived from Okinawa, Korea, China, or even Europe, but no definitive evidence supports any of these theories.

The oldest document on shochu was written by the Portuguese Jorge Alvares in 1546 in his report "Affairs Regarding Japan." According to this report, rice shochu called "orraqua" was drunk in Yamagawa or currently Ibusuki City in Kagoshima Prefecture.

The oldest record of the word "shochu" was discovered on a wooden board in the rafters of Koriyama Hachiman Shrine in Isa City, Kagoshima Prefecture in 1559. This "graffiti" complains that "The head priest is so stingy that he never serves us a cup of shochu! Having such a stingy head priest is a great nuisance for us." It's clear that shochu was made in the area around that time. After that, shochu making techniques were introduced into other parts of Kyushu Island.

Although the origin of shochu production dates back well over 400 years, continuous distillation techniques are relatively new-invented in the 19th century. Thus, the first domestically produced continuous distillation shochu did not make an appearance in Japan until after 1900. Since then, the development of production techniques suitable for bringing out the fragrance of the different ingredients, the discovery of superior yeast strains, and improvements in modern still technology have all contributed to today's continuous distillation shochu.

### Routes of transmission for shochu making techniques



# Geographical Indication

## Details of Geographical Indication

Geographical Indication (GI) is a system which promotes the appropriate usage of the name of the geographical origin, which is the common property of the area. This means that alcoholic beverages can claim exclusive use of the name of the place where it was made.

When a GI is designated to alcoholic beverages, it indicates not only that this is from the correct production area but also the quality is sufficient to meet certain criteria.

Some examples of famous GIs for distilled alcoholic beverages may be Cognac and Armagnac for brandy categories and Scotch for whisky.

In Japan as of 2021, GI regions designated to distilled alcoholic beverages (shochu) are *Iki*, *Kuma*, *Ryukyu*, and *Satsuma*.

### **Iki (shochu)**

**Iki City (Iki Island), Nagasaki Prefecture**

Iki is an internationally approved production district of barley shochu. Iki City is considered as a birthplace of barley shochu.

### **Kuma (shochu)**

**Kumamoto Prefecture's Kuma County and Hitoyoshi City**

Kuma is an internationally approved production district of rice shochu.

### **Satsuma (shochu)**

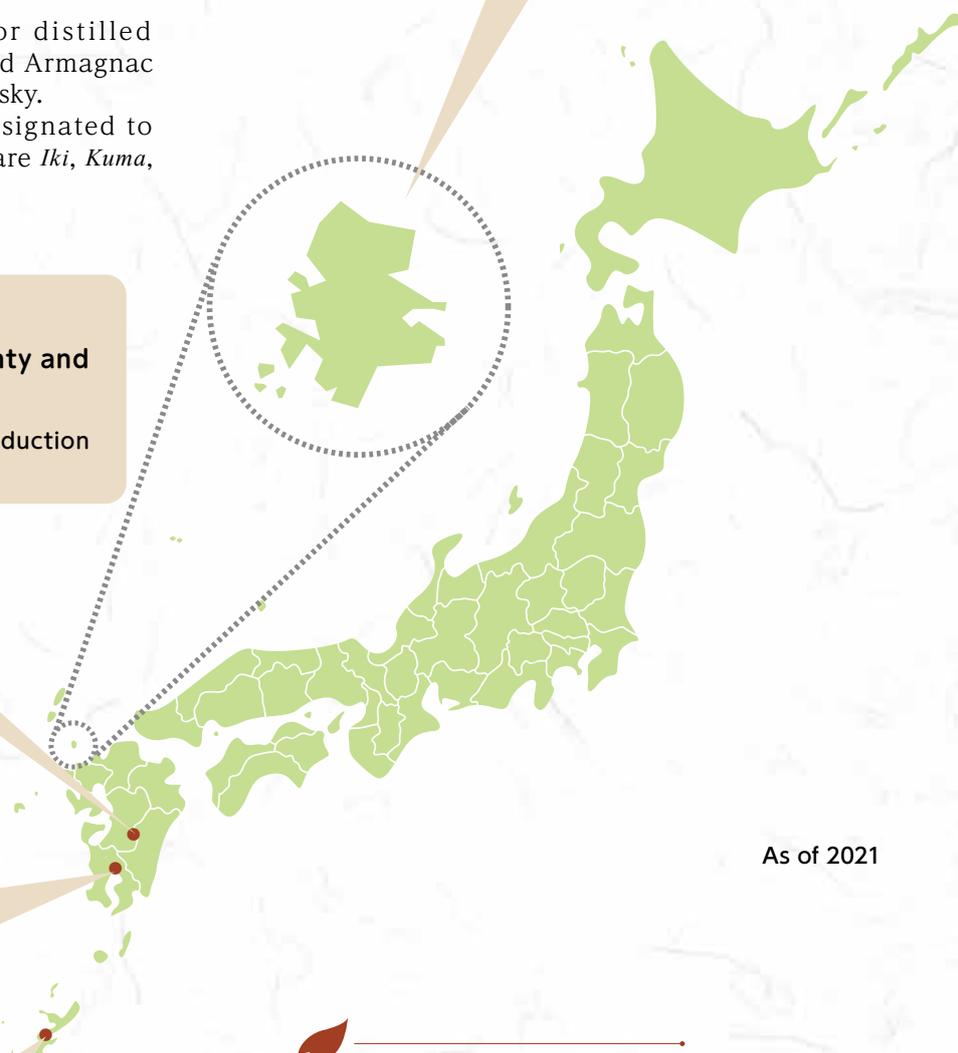
**Kagoshima Prefecture (with the exception of Amami City and Oshima County)**

Satsuma is an internationally approved production district of sweet potato shochu.

### **Ryukyu (awamori)**

**Okinawa Prefecture**

Ryukyu is an internationally approved production district of awamori.



As of 2021



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