

Inja Shōchū - Home distilling Imo/Sweet potato & other Shōchū by Facter

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Introduction

Welcome to the world of home crafted Shōchū!

I put together this guide after a long, long time of experimentation, head scratching, bad japanese translations, hours spent on podcasts and downloading scientific papers, in order to try and crack the mystery of how to produce spirits that were as “close as possible” to japanese shōchū at home. I have seen many variations of ways to make “shōchū” on a variety of forums, however none of my early experiments in following them really produced anything that, as a lover of shōchū since my late teens, really matched up to what I was familiar with.

This guide is the result, and is also the first part of a potential larger volume of guides on how to home craft traditional aspergillus spirits from around the world. I'm happy to say

that as a result of all of this research, authentic shōchū flavours can absolutely be created from this guide, even if they are a little “rustic” in nature.

This article has a large focus on Imo shōchū (sweet potato), as it is the most popular variety, however it has now evolved to include information on a variety of other types of shōchūs.

Imo is the Japanese word for sweet potato, and imo shōchū is one of the most popular spirits in Japan, and one of the tastiest spirits in the world. For more background on Imo Shōchū, check out this link [here](#)

Although this guide is for imo shōchū, most of the recipe and techniques can be applied to other types of shōchū (with a few variations due to different types of starch bases), I've provided other information on alternative starches and sugars that can be used if you wish to experiment with these. You can fairly easily adapt this recipe by replacing the imo with pearl barley, or even a malted grain wash equivalent, at the correct ratio, and distil it with stripping and spirit run, and make cuts, add a bit of wood ...and then you'll have a Japanese koji whiskey ...

Enjoy this guide!

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Ratios

When making any shōchū it is important to know the balance between ingredients - how much koji to use to how much imo for complete saccharification? How much water do I use?

This is where your ratio comes in. For example, I write ratios for shōchū in this format K:S:W. where S = starch (ingredient), K= Koji, W = water. I've then broken this down into a simple metric ratio where the initial measuring unit is the Koji.

The ratio for imo is **K=1:S=6.14:W=4.64** (as defined by the *Koji studies Textbook* - see *appendix A*)

An alternate ratio I also had success with is

K=1 : S=5 : W=3 the flavour was quite deep, however it took a lot longer to break down and ferment, and was a lot thicker due to less water.

So bear in mind, different ratios will give different profile results, and some flat out wont work very well. Stick to the tried and true ratio, then branch out in future once you get a better handle on the whole process.

Alternate ingredient ratios

- Grains (Barley, rice, Soba and other miscellaneous grains) - Ratio: K=1:S= 2.3:W= 5.3
- Awamori - K=1 W =1.5 or 1.6 (no other addition as awamori is 100% jasmine rice black Koji)
- Kokuto (okinawan brown sugar) - Ratio: K=1 S=2.5 W=8 (Kokuto is done in 2 or 3 additions 4-7 days apart, each slightly higher than the last for the total volume)

Please note - these are a guideline and are what the official JSS shōchū handbook says to use, but, as mentioned, I often put a bit of extra koji into my recipes - usually an extra kilo, as that's how I like the flavour.

Ingredients

There are many different types of ingredients used for shōchū, and I'm using imo here as the primary, but have included information on other types as well.

What types of Imo (Sweet Potato) can I use?

The star of the show - but what type to use?

Honestly, it doesn't matter. I've used whatever I can get my hands on, which in my country isn't all that many. But I've had great success with red, white and purple varieties. White and purple tend to have more sugars in them, and you'll get a higher yield, but an imo shōchū I made with bog standard red sweet potatoes had such a deep earthy flavour to it that my friends seem to always pick that as a favourite. Just experiment, and don't worry about it - you can also combine different types for different complexities and flavours, this is the joy of it all.

Working out the Recipe

I use 30L fermenters, and I like to max out my yield, so I've found that you can usually fit the following amount of ingredients in it without it busting out. In essence, given the imo ratio of $K=1:S=6.14:W=4.64$, you will require the following

2.25kg koji
13.75 kg imo
10.4L water

This will yield approximately 20-22L of wash (including the solids in the still - see below). Trust me, it seems like it won't all fit from the numbers, but I've always gone way under my fermenter volume even with expansion during fermentation. If it doesn't, just adjust your ratios and use lower volume. Remember that this is total volume, and that the ferment will be split into two parts (moromis) so you won't be putting all those ingredients in at the same time - if you have volume issues and it's too much, adjust down to this if you want a smaller volume

2kg Koji
12.2kg imo
9.28L water

You can adjust as per the ratio to whatever your fermenter/still size is, no wukkas.

I have found myself, however, sometimes adjusting my ratio to 3kg of koji - a higher ratio helps ferment out the imo a bit better, and give the product a little extra sweetness if you

are using rice koji. Again, the flavour profile will change a little, but the above ratios are the minimum amount of koji you'll need for the batch.

Alternate Ingredient recipes

Different starch/sugar ingredients and styles require different ratios (see appendix 1 for reference), but, in general its divided into Imo, "Grain" (ie soba, rice, barley), Kokuto (Okinawan brown sugar/jaggery), awamori and a whole heap of other weird "official" stuff (see the Appendix for the list)

Here are some of my alternate recipes that I have had success with - be aware that on some of these I may have adjusted the ratios here and there, I experiment a lot, but when you are first starting out try the "official" ratios as per the ratios section, then alter when you have a handle on things.

See the "preparing ingredients" section for more info on how to prepare your ingredients for fermentation.

Rice (Kome)

Ratio: k1.5=S=3.5:W=8

3kg koji (I altered the ratio and added 1kg extra rice koji)

7kg pearl Barley (half roasted)

16L water

With this, you're basically making a two part sake but fermented at a higher temperature. Rice is notoriously difficult to extract wash from, but if you let it settle a few times after racking, you'll be okay. As per the distilling instructions, you'll use these lees in distilling anyways.

Handy tip: The best commercial rice shōchūs I have tried have usually been vacuum distilled, unfortunately I have no access to such equipment, but if you have one, absolutely use it for this!

Barley (mugi)

All all-barley recipe I created used the following ratio

Ratio: k=1.5:B=3.5:W=8

3kg Barley koji (I added 1kg extra koji, whatever colour you wish - you can also use rice koji, everything is variable!)

7kg pearl Barley (half roasted)

16L water

901 yeast

This is a very very “whiskey” type mugi (see the bonus koji whiskey section in the appendix!) For something a little lighter and sweeter, use a 701 yeast and white rice koji with the textbook ratio. The fermenter with this volume was very very full, so beware, adjust down if required.

Soba

K1 S:2.3 W5.3

3kg Black koji rice

7kg Soba (buckwheat)

15.9L water

You’ll notice that this uses a different ratio to the standard, and that was because they say that soba is a very hard shōchū to make sure to the buckwheat not fermenting very well, so I changed the ratio to give more koji to assist in fermentation and saccharification based on a small anecdote I found ...somewhere. Well, this ferment went like absolute crazy and I got a huge yield from it, so it worked. Again, it really pushed the limits of my fermenter and almost exploded out the top, so maybe adjust it down.

On my first soba experiment I used only a small amount of toasted soba, white koji on rice koji and a 701 yeast, and the koji umami overwhelmed it. I have now had greater success using the above recipe with black koji, 901 yeast and toasting $\frac{1}{2}$ to $\frac{2}{3}$ of the soba - I've found that toasting a large amount of your soba pre-steaming is the key to its amazing flavour.

Handy tip: buckwheat is really weird and it turns slimy when you've soaked it, the recommendation everywhere online for cooking soba is to just put it through a colander, drain it and wash it off - don't do this! You're not eating the stuff, so it doesn't matter if you steam it with all that extra protein slime, it'll cook the same. If you're toasting your grains (you kinda have to), you will lose some great flavour by washing all of this off. Also, I now collect the water that I've soaked the grains in as well! I boil this "soba wastewater" and when it's cooled off, put it into the fermentation bucket - you'll boost that beautiful toasty soba flavour in your Shōchū by doing this.

Awamori

Unlike Kome (rice) Shōchū, which leaves a heap of lees, due to the awamori using completely koji rice, it breaks down almost totally by the end of fermentation, and is very easy to extract the wash from (you will use the rice lees in distilling, see the distilling section below) ...and yes, you will use the lees to distil with, as you'll see in the Fermenting and Distilling sections. Anyhoo ...

ratio: K:1 W:1.6

10KG jasmine rice koji

16L water

901 yeast

I've also managed to adjust my ratio for awamori up to 12kg of koji, and it just, just fits into the 30L fermenter with a few centimetres at the top, give it a go if you want to max out your yield, but you've been warned! haha

Here's a handy recipe tip too - if you're a beer brewer, take your favourite "heavy" beer recipe (10% plus - stouts work amazingly!) make the mash without the hops, add it as the second Moromi (second stage of fermentation) and you'll have your own unique mugi (barley) Shōchū. Bazinga!

Kokuto (Black sugar/sugar based)

K=1:S=2.5:W=6

3kg rice Koji
7.5kg sugar (in moromi 2 & 3 additions)
18L water (6L in each 3 moromis)
701 yeast

Sugar for kokuto Shōchū is usually referring to kokuto brown sugar from the Amami islands. But if you look around, you'll see how damn expensive that stuff is. Fml. The best substitute is to get dark jaggery, usually found in Indian grocery stores. I also used a combination of palm and coconut sugars, but if you are using these ingredients, as I found out the hard way, beware! Some of them have additional preservatives that kill ferments, and some, especially the coconut sugars, have very high salt contents. Test different brands, and maybe make a tiny small ferment test from each one before you commit to dumping 7.5kg of it into your moromi :D ..trust me, I learnt the hard way!

Additionally, kokuto fermentations are a bit different - most of these recipes involve two stage fermentations, but kokuto uses 3 or 4 additions to keep the ferment going, so the sugar amount is divided into 2 or three additions. See the section on Fermenting for more details.

I cut my recipe down in water from the above, because my fermenter just couldn't fit the volume, it worked just as well but the higher abv made it struggle a bit. So use the correct ratio first, and see how you go before trying variations.

Koji

Koji is the essential ingredient of Shōchū, and although it can be a beast to wrap your head around at first, with a bit of trial and error (you absolutely will fuck up, maybe) you can easily master it. Currently I can make up to 4kg batches of Koji, and it will be easy to scale up even more, so if I can do it - so can you.

What type of koji can be used for Shōchū?

A large amount of shōchū, mostly imo, is made using "black" koji. This is due to the fact that it produces a lot of citric acid, which protects the wash from infection in the warmer southern climes of Japan. That said, there are many distilleries that use both white and yellow koji as well, so it is not essential that you use black koji.

I have made imo from all the varieties, and it's just as delicious (in some cases even more so!) than that with black koji.

- White koji - (*Aspergillus kawachii*) brown spores, and it is used a lot in Shōchū production.
- Yellow Koji - (*Aspergillus oryzae*) mostly used for making miso and soy sauces, it's also found popularity in sake making, and is absolutely cool to use for Shōchū too.
- Black Koji - (*Aspergillus luchuensis* & *aspergillus awamori*). My favourite! A black spored Koji that produces a hell of a lot of citric acid, used in a lot of imo Shōchū and Shōchūs produced in the south of Japan due to its antibacterial properties from the acid.
- Red Koji - this isn't really Koji, it's a different creature, *Monascus purpureus*. I'll cover this in my future Baijiu guide.

Substrates

Another thing to think about with Koji and flavour profiles, is the "substrate" you use. For the majority of shōchū, this will be rice or barley. I use koshihikari but you can find your own that works for you and your tastes.

... and barley Koji! It's a little trickier to make than rice Koji, but well worth the effort. White, yellow or black Koji all work, and will each give a different flavour profile - you're starting to understand how varied Shōchūs can be, aren't you? 😊

I've had success with both rice (round and jasmine) and barley koji. Rice tends towards sweetness, and barley tends towards a little more "earthy" in the flavour profile.

There are many many people experimenting with different types of Koji beyond these main ones, there are even people making sweet potato, soba and so many other types of koji it's not funny - all will work, as to whether they go with shōchū? Who knows, give it a burl?

You should really just [join the Koji Discord](#) and see even more.

Making koji

As for how to make koji, sorry all, I won't go into detail here because its such a huge topic if you really delve into it , you can find all the info you need [on the Koji wiki](#), and [join the Discord](#) while you're at it. You can buy packs at Japanese supermarkets, but it'll cost you, and honestly the flavour isn't as great as fresh stuff ..best to get some spores, get learning and make your own!

All that said, making koji really isn't a very difficult skill to master, don't let any stuff ups or bad batches dissuade you from it, it is an immensely rewarding process. Once you get the hang of it, you'll be regularly waking up at 2am in the morning to cool down your koji just like the rest of us!

See the references on where you can buy some koji spores in the References section..

Yeasts

Specific yeasts that are cultivated for shōchū exist, and these are what most distilleries in Japan use. Unfortunately, try as I might, I have not been able to find any of these yeasts available for anyone outside of commercial distillers in Japan, except via Akita Konno

AK however only provides slants, and no longer ship these slants outside of Japan due to covid - hopefully this will change in the future.

The AK varieties available are

- Shōchū yeast No.1 - This has vigorous propagating ability, fast ferment rate and good yield of alcohol.
- Shōchū yeast No.2 - Nystatin tolerance yeast of Shōchū yeast No. 1 having characteristic scent component.
- Shōchū yeast No.5 - Mutant of Sake yeast. Mild taste.

Again, if anyone can get these yeasts for home use anywhere at all, please dear god let me know 😊

What are the best substitute yeasts?

Commercially available sake yeasts or sake yeasts that have been taken from unpasteurized bottle conditioned sake (Nama sake) are the best substitutes for Shōchū yeasts. The most popular of these are Wyeast and Whitelabs, and these are both of the two main types of available sake yeasts.

- Wyeast 4134 - #9 sake yeast (foaming)
- Whitelabs WLP705 - 701 sake yeast (non foaming)
- Whitelabs WLP709 - 901 sake yeast (non foaming)

As mentioned, you can propagate yeasts also from unpasteurized "nama" sake, tho the availability of those in your area may vary significantly, and you need to learn how to do it, but if you're a beer brewer you may have some luck in isolating some of the more uncommon strains.

Your choice of yeast will absolutely make a huge difference to your flavour profile. Personally for shōchū the #9 is the best, it just has a better, more robust flavour. Substitutes for sake yeast can be used, but you will take a hit in that "authentic flavour", but, I have had some success and can suggest some of the following

- EC1118 - ferments out well, but at high temperatures that Shōchū is supposed to be fermented at it gives some weird flavours and doesn't perform well, give it a go at lower temperatures maybe, but it's a very neutral yeast so won't give much back.

- Belgian ale yeast - this is actually quite tasty, I go for the high gravity Belgian ale yeasts. The downside to this is that the alcohol tolerance isn't as good as sake yeast, so you'll get lower yields.
- Still spirits whiskey yeast - actually, I only use this in a Koji whiskey and as that was double distilled I can't vouch too much for it, unless that's what you're using it for! Then it's highly recommended.
- SN9 wine yeast - very high alcohol tolerance and at high temps throws off some nice esters. This is my go to for an alternative, as well as the yeast I always use for my makgeolli. Give it a go.
- Angel Yellow Label Yeast - I have used angel yeast before, but for other rice based spirits,.never for Shōchū. The main reason people use yellow label angel yeast is for the enzymes it includes that can perform saccharification, and because Koji has that same enzyme that's isolated into the yellow label, it isn't really needed for Shōchū making. The yeast portion of it alone, well, I find it's a pretty mediocre yeast, and not as good as other wine yeasts, but do an experiment with it if you wish.
- Kviek Voss - oh hell yes. Great esters and it loves 30c. A favourite.
- Sweet mead yeast - I've heard this recommended, but have yet to try it.

Overall, my recommendation if you can't find sake yeast, is to double pitch a robust wine yeast like EC1118/SN9 and a high gravity belgian ale+/kviek yeast. It'll give great flavour and also be able to devour whatever you throw at it.

Preparation

Different ingredients involve different types of preparation. All ingredients except for kokuto involve cleaning and cooking, in order to gelatinise the starches for saccharification and consumption by the yeast.

Preparing Imo

For your imo, just wash them and scrub them down. Cut out any parts that look suss or rotten or generally weird. Always cut off the end tip of the potato - the end tip is actually very bitter and isn't generally ever included. Also, do not peel your sweet potatoes, half the flavour of them is in the skin 😊

I then steam mine, which is traditionally the way of doing it. I go the "basket steamer" route, and I have a three tier stainless steel 42cm diameter one, it fits just about 12-14kg of imo if I push it (maybe 9-10kg if grain, damn you grain expansion). Cost? About \$50 USD. Peanuts, and it'll last you forever, and is perfect for batches at the 30L fermenter size.

Sure you can also roast your imo, but it'll change the character of it, plus - and here's why they don't do it a lot, you will lose moisture content. Imo is about 77% water, and roasting it will throw off your ratios, not a biggie, but it absolutely will (as well as the caramelisation) change your flavour profile. But hey, I've added roasted to the mix, and it's nice! Again, you do you, boo.

So then once your imo is cooled down you gotta mash it all up - and I can't stress this enough - take the time and mash it goood. Chunks have a harder time fermenting, so if you can blend it, smash it, and generally smoothie-ify it then you'll get a better ferment. I'm still looking for a quicker and more efficient way to do this at home, for the time being, well, it's a good arm day workout with my masher.

For water I tend to just use Britta filtered water - no muss, no fuss, but obviously some nice clean spring water is a good bet.

Preparing other starches/sugars

- Rice - wash and rinse it at least ten times. Let it soak in water for a minimum of 3 hours. Rinse it off and then let it drain for half to one hour. Steam it in a steaming basket, not in the microwave, absorption method, or a pressure cooker - get a good large steaming basket or a stacker, it makes a difference to the flavour, for sure. Steam for 45-50 minutes until it goes translucent and "Al dente". Cool it down to 30c before adding it to your Moromi.
- Barley - use pearl barley. Toast a portion of it in the oven, it really helps. Soak overnight, drain for an hour. Steam in a large steaming basket for an hour.
- Soba (buckwheat) toast at least 50-70% of it, without toasting soba doesn't reach that great deep flavour that shōchū is famous for. Soak overnight, drain 1 hour,

steam for one hour at minimum, tho I sometimes go to 1.25 hours just to ensure the grain husks have burst.

- Kokuto - or any other sugar, really. Just dissolve it like you would sugar for rum in hot water and let it cool to 30c. You can invert it if you want, but it isn't always necessary, the koji masks the sugar bite a lot. No nutrients needed, the Koji provides all of that 😊

Fermenting

Shōchū is usually a two stage, or more, fermentation process - with the exception of some awamori. Multiple stages allows for a starter to build up yeast and act as a “protector” with the acids and subsequent stages can have an effect on the overall profile of your drink. For example kokuto can often use three or four stages, in order for the yeast to properly consume the raw sugars involved in making it.

Fermentation Temperature

It's important to ferment your shōchū at a higher temperature, this isn't sake. By all means, experiment with lower temperatures, but for me the flavour has always been a little blander than if I am doing it at higher temps. The sake yeasts I use love the higher temperatures, and throw off a lot of very complimentary esters that wouldn't really work in sake.

So, try to maintain between 25-30c for your fermentations, personally I always aim around 30c.

First Moromi

First moromi is basically your starter. It lets you build up a lot of yeast as well as some acidity to protect the wash.

My ratio for the first moromi is always to use all of my koji, and you always double the water.

ie 1st Moromi - 3kg koji, 6L water. Then add the yeast. Let this ferment for 7 days at 30c - most Shōchūs are fermented at around this temp, allowing for the development of essential esters,

Second Moromi

Second moromi is where you add your starch source, and additional water.

So for the prime “imo” recipe and ratio, in the second moromi you would add your entire imo amount, and the remaining volume of water (total recipe volume minus 1st moromi water volume)

Continue to ferment at 25-30c, for around 7-14 days. I’ve occasionally gone longer, but that's my fault as I didn't mash my imo correctly on my first few batches - reducing large solid chunks will help your ferment go faster. I have heard of some distilleries going for a month or two, which seems a lot but I’m assuming they are chasing a specific flavour profile with it.

If you're adapting this recipe and making awamori, then the ferment time is around 19 days.

Play around with it, and see what happens - but, as per most washes, when activity has died off, you're ready to prepare your wash for distilling.

Stirring the wash

There is no hard and fast rule I’ve found for this, however stirring the fermenting wash every day or two will assist in fermentation. Like fruit brandies, as you are fermenting “on the grain” with most shōchū moromis, it helps to knock down the “cap” and stir it a bit here and there. With something quite thick like imo, it also assists the koji in helping to saccharify the starches.

There is generally no need to do this for kokuto shōchū as it is sugar based, and awamori I have found just doesn't need it - there is so much enzymatic action going on with the 100% koji that stirring seems quite superfluous.

OG/SG targets

Don't worry about it? People say to keep a wash under 10%, but shochu is designed to be distilled at a high abv, and higher abv will also add to the unique flavour. If you're (hopefully) using sake yeasts, don't worry, they can handle these higher Abvs, even at a higher fermentation temperature.

I mean, you're not really going to be able to measure your OG/SG (unless you really want to calculate it after distilling) anyways, sooo ...

Checking SG and using hydrometers during fermentation

In all parts of both moromis, hydrometers are useless, this is because of the parallel saccharification and fermentation of the ingredients by the enzymes and the yeasts. The solids and unfermented starches just will not give you any kind of reading that is accurate.

So if you're looking for numbers, it just ain't gunna happen - just trust that it ferments out when the activity stops for a day or two, and that your still will do its job.

Preparing the wash

Almost all Shōchūs are distilled "on the grain", which can be challenging for home distillers using electric powered stills like my digiboil, or direct heat from a gas burner. After a fair bit of experimentation, scorching and some thrown batches, I've found the following method the best, but if you already have a still or method for distilling on the grain without scorching, go for it.

Extract & Clear

This is a difficult one, and a little labour and time intensive but it's quite simple. Place your fermented imo in a bag, and squeeze the living shit out of it. It will resist a lot. Don't use too fine a mesh bag, use one that's fairly open holed in size, this will let some solids through but allow a lot of liquid.

I use a fruit press and then press this into a bucket. Some have used a "mop wringer" bucket to much success also. This may take a few hours of going back and forth applying pressure to the bag, but in the end you should have about 15L-20L of wash.

Then use whatever clearing agent you want, turbo clear or bentonite, and let it clear for a day or so. Then, I extract the liquid off the trub - I'll lose about 2L of this as there will be a lot at the bottom, but them's the breaks - you'll gain a bit back in the next step. Sometimes tho, I'll take that leftover trub and let it clear even more and extract liquid for another batch to throw it into, or put it into another first Moromi.

Bag and dump

Take the cleared out wash, and put it into the still - again, this part is important, you have to have a false bottom. The false bottom is essential - you can get them from Kegland or whatever provider for your still, they're usually found as mesh circles in the use of BIAB beer brewing.

Once the cleared mash liquid is in your still, then comes the fun part.

Take your leftover solids, and put them into a *fine Mesh bag*. This time you want the mesh to be fine so that not too much of the solid material will escape into the clearer wash.

What will happen is that the still will boil the alcohol off in the wash, as well as heat the solid, compressed imo that has been immersed in the clear wash . As it's been compressed also, it won't fall apart too too quickly (it will after a while) and get other stuff into your cleared wash. Yes, some will escape, but not so much that it'll get to the bottom

of the still and scorch. It's also been suggested that putting marbles in the bottom of your still can also help to negate scorching, something I'll have to test in a future batch.

You can use this method also for other ingredients like barley, soba, and rice. Rice, however, can be a bit more of a task, and it requires a few more filtering steps as it basically turns into glue in the boil if you don't remove a lot of it from the wash - I'll update this method as I continue to update this guide.

Put a knob of butter into the still or some kind of antifoaming agent, because this stuff will foam a little bit, but not so much as it's being run at a lower temp.

Now your Shōchū mash is all done and prepared, and you're ready to turn on the still.

Distilling

Shōchū is a single distillation pot still spirit. If you're using a column still, put it into pot still mode by removing the packing - I can't say how else or how to work your specific still, as to be honest I've never used a column still as I always want as much flavour with my spirits as possible and never do neutrals.

I use a 30L digiboil with an alembic pot still with a copper dome. Lots of copper is very very good for Shōchū.

With a 20L wash you should yield approximately 2-3L of final Shōchū.

Low & Slow

Low and slow isn't just good for BBQ, it's great for shōchū. My digiboil is usually always set to 1900w, in order to reduce this I have a voltage adjuster set up, which I keep at about 50% - most of my distillations are therefore done at around the 800-900w mark. It also helps prevent scorching from solids if your heat is lower, so I generally start my run at "mid power", yes it will take longer to heat up, but Shōchū distilling isn't a quick process anyways so an extra hour won't make too much difference.

A typical Shōchū run of the volume specified in this recipe will take roughly 5-8 hours, depending on the wattage at which you run it - it's an all day kind of thing. I keep the heat at "mid power" (around 1200 watts) until the fores come in, and then gradually drop the voltage. Too quick a drop and your distillation will slow to a almost halt, I have some theories behind this, and most have to do with the bag and the solids in the distillate having to adjust. When the fores come in, take it down to the 800-900w mark slowly. You don't want to keep this at full power, because you will increase your risk of scorching, as well as you won't get as nice an output of flavour from your wash if you run it too hard.

Occasionally with this method of on the grain, your flow of distillate will slow down here and there, again I believe that this is the mass of the bag causing fluctuations in the boil, I'm still trying to tease this one out.

Where to make cuts

There are no cuts in imo shōchū, or, really, any shōchū (still trying to find out about kokuto, but that's for another time).

Let me repeat just so we're very clear - there are no cuts in shōchū, or rather, the "cuts" don't exist in the same way that they do in most distilling techniques. With shōchū, you keep (most of) the whole hog.

- 初垂れ hanatare - 'first drippings' - the early 'heads' portion. In rare cases just this portion may be bottled and sold as hanatare Shōchū - and it is usually served straight out of a freezer.
- 本垂れ (中垂れ) hontare / nakatare - the middle or 'hearts' portion.
- 末垂れ suetare - the end or 'tails' portion.

Fores and Heads

Yes, remove the fores, that's your first and only absolutely necessary cut you need to make, except right down at the end of the tail run. According to Japan Distilled, they have seen some distillers put a bucket up to the spout, and when that's full, that's their fore cut -

rustic, but a very cool way of always knowing the volume at which to start collecting the main run.

Then, they will just collect the distillate in a single barrel, again, keeping the heads. Personally, I do occasionally remove the first jar or two of heads (400ml after fores from this recipe volume), but that's just for personal preference and it depends on the type of shōchū I'm making. For imo, the heads blend back down into the hearts and the tails so well that you don't even need to do that - but you can, if you so wish. Just don't remove too much. The reason for this, is if you try a commercial shōchū, there will always be a little bit of bite down in it, but because as Shōchū is served and sold at 25-30% ABV, it is very rounded out, combined with the tails it is essential for the character of a true Shōchū to keep that small bit of bite.

There is, in fact, a whole genre of shōchū that is made entirely out of the heads cut, this is "hanatare" and is said to be extremely unique yet beautiful, can't wait to find some to try, but in ageing some right now so I guess I'll find out soon enough!

Tails

Okay then, keep the heads. So we get rid of the "tails", so that we don't get that "wet cardboard" taste, right? Nope again. "Wet cardboard" doesn't seem to exist in imo at least - I have detected traces of it in mugi (barley) but as it isn't using malted grain it seems to not be as present as it is when you're making whiskey, or maybe the Koji softens it, who know. As mentioned, the tails in imo help round out the heads, and it is essential to keep most of them for a full flavoured drink. Under 20% things do get pretty nasty however, kind of like swamp water. I do collect this, but I keep it in my Shōchū feints keg for chaamera/all feints runs.

I've always gone fairly deep into the tails, but apparently even my "deep" wasn't deep enough. I mean, the tails go deeeeeep. This was verified by the guys at Japan Distilled, where they stated that the Total collected "blended" ABV of imo Shōchū is around 37-40%. This is the "Storage" abv that most distilleries will age their imo at.

Considering that heads for imo usually come off around the 65% mark (this is a huge generalisation but it's what I have usually had), the fact that the "storage ABV" proves that

the collected distillate goes very deep into the tails themselves. In tests I've gone down to the 20-30% tails mark in order to hit the 37-40% collected storage ABV.

The fusel amino protein bomb

At some stage during your tails, the distillate will start to go milky, and it'll happen quite early. When I first started making shōchū, this was where I'd usually end my run, because that's how I always thought spirits worked. I ended up with some pretty low yields ... this "cloudy milky tail" run happens in almost every single Koji based distillate I make and it annoyed me no end, until I realised - this is normal!! And it actually goes into the blend, as mentioned above you do use a lot of the tails (all the bits that don't taste completely disgusting anyways).

The reason behind this "milk bomb" was teased out by FissionC - and he hypothesised to me in a chat "Many shōchū are heavy on the fusels. Once you hit tails I think you get more fusels coming through, plus they don't want to stay dissolved as the abv drops below ~45%.

Since koji liberates a whole spectrum of aminos from the proteins in the ingredients, the yeast have a buffet to choose from and can produce all kinds of fusels. It's clearly part of the flavour profile in shōchū too.

<https://www.youtube.com/watch?v=bNmfwneuuo> “

And he's right, I'm distilling as I type this and I checked the ABV of the milk tails and it was at 44% - I've noticed it appearing at this ABV a few times before when I've checked it.

Anyways it's very common - don't freak out about it, or about tails coming in early - as I've said you can actually use this part of the run, at 45% it's pretty early still in the tails for shōchū and you can go much deeper than this. Those oils will usually even separate out over time and shouldn't lead to too much cloudiness in your distillate with some ageing, however if they do there are ways to mitigate it later (see below re:oils).

That said, a point of pride for some craft shōchū distillers is the cloudiness of their product - and if it tastes good, who cares!?

Ageing

I have made some shōchūs that have been absolutely delightful straight off the still, and I've aged many also. Young shōchūs pack a punch from the rather green heads in them, but their "in your face" flavours, combined with the balance of the tails, compensate for it.

Usually, however, as a home distiller you'll be ageing in jars, and 3 months is the minimum at which I'd proof it down and bottle it.

I do generally aim for 6 months minimum, if I can keep my hands off a particularly tasty drink.

There is a version of Awamori (Okinawan shōchū made from 100% Thai jasmine rice Koji) called Kasu, and this is aged for a very long time, often in a solera system, they basically just add a portion of every run they do to a ceramic jug, refilling what they have imbibed since the last run. Kasuz strangely enough, actually gets sweeter over time, this is (apparently) due to the molecules from the Koji behaving differently to what happens with other types of non-koji based spirits - this also applies to other Shōchūs, tho sometimes to a much lesser degree.

Ultrasonic "ageing" treatment

I don't like the term "Ageing" for the use of UltraSonic, but that's the term a lot of people are familiar with - I prefer "treatment" myself. That said, I pretty much ultrasonic all of my shōchū. There's huge debates on this, but for me, shōchū lends itself amazingly well to being put through the US treatment process. After literally hundreds of tastings, the biggest impact I've found is that it mellows that "headway bite" in a young shōchū and gets rid of a few of the more "not quite right" flavours much quicker.

I've done US on a few different types of alcohol, some it didn't seem to do much at all - but with shōchū, it really does. Give it a go and let me know your thoughts. Another is that the

US tends to bring out the oils (see below) nice and quickly and you can get rid of these easier.

I generally do US in 30 minute bursts, with half hour rests between, and take the temp all the way up to 60-65c - and never above. From there I'll always let it drop down to around 30, then cycle it again up again. All in all I do this process about 5 times, and then I put it into the jar to age for a few months.

There is some small loss of volume by taking it up to 65c - but only if you take the lid off your machine when it's so warm, I do this every so often to really flush out those unwanted volatiles - however it is quite minimal loss and an acceptable amount.

Oils

Because you've gone deep into the tails, over time oils may well collect on the top of your distillate while it's ageing. Yes, some of this is from the sweet potato if you're doing imo, but a lot of it is from the koji itself. Some of the oils will appear right at the time of distilling, and some will separate over time.

Shōchū distillers have a neat trick for handling this - every so often as the shōchū is ageing, they will check for oils on top of the distillate, and if they see any they will just take some plastic wrap (ie saran/gladwrap) and wick it off the top of the spirit as it will generally stick to the plastic.

No matter how tempted you are, or worried about it, do not try to "fix" this or think of something going wrong, and put it through a carbon filter. All is fine and normal:)

To the point of fact, some distillers even leave these oils in their product, again, as a point of craft. If you want to experiment with it, go for it and let me know your results. The reason being is that the oils do have a chance of oxidation, which can make them go rancid over time - there may be ways to mitigate this, but who knows, maybe oils and Shōchū is a good topic for Chris and Stephen at Japan Distilled?

Filtering

Alternatively, as well as removing the oils, distillers will filter the shōchū - paper filter, not carbon filtering - never carbon filter shōchū! it'll strip all that flavour you spent so much time cultivating right out of your product.

Paper filtering is used by a lot of distilleries and will help remove any additional larger impurities or oils in the shōchū. I just use my existing filter tube, and pack coffee filter paper into it and let it drip out at a slow to moderate rate. Works a charm.

Adding wood

Oh god this is heaven. Shōchū and wood go amazingly, and there are actually quite a few Shōchūs on the market that have been aged in wood that are described as "rice based whiskeys" - there's even wooded awamoris that are marketed as a whiskey.

All in all, the two woods I've found that go really well are cherry and apple. I'd love to try maple. A lot of the time I'll put in a small stave of American oak just to give the cherry wood a complimentary bite and complexity, tho I'm not a fan of pure American oak, I just think it can get too aggressive for an oaked Shōchū and the cherry really rounds it out - so if you want to go that route, use "second use" American oak. French oak, for me, sucks - but hey, personal taste and all, give it a whirl if you're into it.

Medium toast with medium char works wonders with a good shōchū.

Everyone's tastes are different, so just experiment with it! All I know for absolute certainty is that Shōchū and wood are a beautiful match.

Proofing

Shōchū is generally proofed down to 25% commercially, though there are some 30%. Some distillers now also do an export version at 37-43% for the use in cocktails.

Awamori is often also traditionally served in a higher proof range and very often found in the 35-43%, however many are also in the 25% range. I prefer my awamori at the higher strength.

Appendices

Appendix A - Koji Studies Textbook Shōchū Ratio Table

Table IX-6.1 Typical brewing recipes for honkaku (B-type) shochu. The total weight of ingredients is determined by the following equation based on the size of the container.

Total raw material (kg) =
 $0.8 \times \text{Tank Capacity (litres)} / [\text{Raw material coefficient} + (\text{Volume of water used} / 100)]$

The raw material coefficients in the above formula are as follows:

Main ingredient	Sweet potato	Rice	Barley	Shiranuka (Shiso)	Brown sugar	Sake kasu
Raw material coefficient	0.8	1.15	1.1	1	0.9	0.9

Rice, mixed grains – Kome shochu 米焼酎, mugi shochu 麦焼酎

Raw Materials	Stage 1	Stage 2	Total
Koji rice	300	–	300 kg
Added grain (kakemai) eg. rice, barley	–	700	700 kg
Added water	360	1240	1600 ℓ

Ratio of koji to other ingredients: 43%, Water ratio: 160%

Sweet potato – Imo shochu, imojōchū 芋焼酎

Raw Materials	Stage 1	Stage 2	Total
Koji rice	140	–	140 kg
Sweet potato	–	860	860 kg
Added water	170	480	650 ℓ

Ratio of koji to other ingredients: 16%, Water ratio: 65%

Awamori 泡盛

Raw Materials	Total
Koji rice	1000 kg
Added water	1500-1600 ℓ

Ratio of koji to other ingredients: 100%, Water ratio: 150-160%

Brown Sugar – Kokuto shochu 黒糖焼酎

Raw Materials	Stage 1	Stage 2	Total
Koji rice	285	–	285 kg
Brown sugar	–	715	715 kg
Added water	350	1950	2300 ℓ

Ratio of koji to other ingredients: 40%, Water ratio: 230%

Sake kasu, Kasu moromitori - Kasutori shochu 粕取り焼酎

Raw Materials	Stage 1	Stage 2	Stage 3	Total
Koji rice	280	–	–	280 kg
Sake kasu (sake lees)	–	720	–	720 kg
Added water	350	1000	150	1500 ℓ

Ratio of koji to other ingredients: 40%, Water ratio: 150%

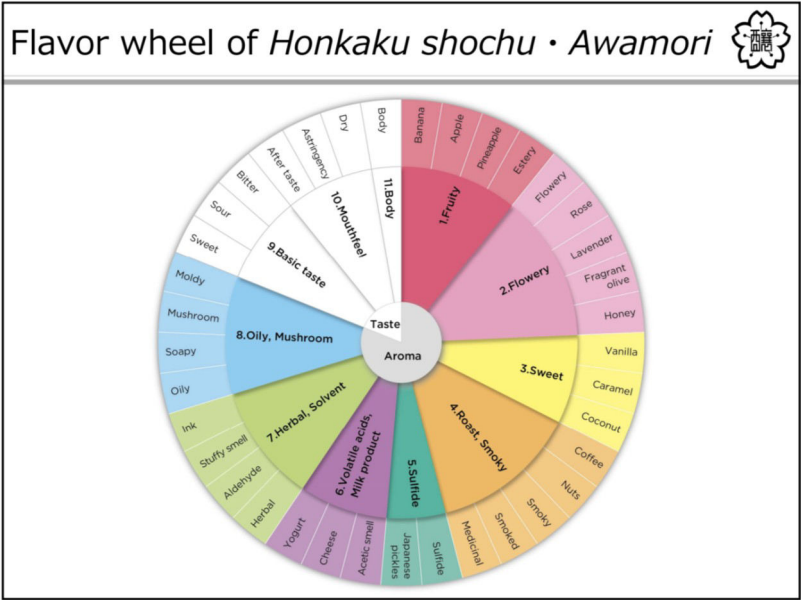
Appendix B - Official "Honkaku Shōchū" approved ingredients

Legally Approved Base Ingredients of Shochu					
Standards	Beans, Nuts, Seeds	Leafs, Greens	Root Vegetables	Vegetables	
Potatoes (sweet potatoes, potatoes, etc.)	Azuki beans Sesame seeds Sunflower seeds	Ashitaba Shiso Japanese butterbur scape (<i>fuki no toh</i>)	Lotus root Daikon Carrot	Tomato Pepper Leek	
Cereal (rice, barley, buckwheat, etc.)	Water Chestnuts (<i>hishi no mi</i>) Chinquapin (<i>matebashii no mi</i>) Acorn (<i>konara no mi</i>)	Mugwort (<i>yomogi</i>) Water hyacinth (<i>hotei aoi</i>) Silvewine (<i>matatabi</i>)	Asian Ginseng Lily bulb (<i>yurine</i>) Arrowroot starch (<i>kuzu ko</i>)	Pumpkin Green peas	
Sugar (brown sugar)	Chestnuts Plum seeds	Gynostemma (<i>amacha zuru</i>) Kuma bamboo grass (<i>kuma zasa</i>)	Onion		
Sake Lees	Horse chestnuts (<i>hishi no mi</i>) Dates Ginko nuts Peanuts				

Seaweed	Dairy	Tea	Mushrooms	Succulents	Flowers
Wakame Nori Kombu Tsunomata Tsurutsuru	Whey powder Milk Skim milk powder	Matcha Green tea Oolong tea	Shiitake Enoki	Cactus Aloe vera	Safflower Saffron

Source: <https://www.nia.go.jp/about/organization/tokyo/sake/abc/abc-shochu.htm>

Appendix C - Shōchū flavour wheel



<https://www.nrib.go.jp/English/>
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- double distilled whiskey made of koji and barley,
- double distilled whiskey made of koji and rice
- whiskey made directly from a single run of Shōchū, either straight Shōchū or Shōchū with tighter cuts and put on oak/wood
- whiskey made of awamori, either single distilled and oaked or double distilled, or “kasu” solera style
-

Making Koji whiskey is pretty easy - basically, you make a barley or rice Shōchū, or awamori. Yep, that's it.

With the exception of the yeast you use, it's the same process. And why not use sake yeast? You can, but it tends to way more fruity than I like in a whiskey, so instead I use a whiskey yeast, but you can absolutely use the sake yeast or whatever yeast you use for your shochu, whatever floats your boat.

The difference for my recipes is that I take proper cuts, and I do a stripping run and a spirit run. Of course, you can absolutely take just a single run shōchū, with no cuts, put it in wood as mentioned earlier and hey, whiskey. I recently made a shochu out of dates, which was average, but I took a portion and throw some American oak into the US with it, and ... daayyummm.

So I always take my heart's, and go hunting for some extra flavour in the tails, then I put it in a combination of American oak, cherry or apple, and done. Your two runs, as well as doing proper cuts, will also negate a lot of the fusel oils accumulating in your spirit.

Of course there are big exceptions to this as mentioned before, there are awamori based Japanese rice whiskeys on the market that are exactly that, just awamori aged on oak.

Just remember, to get the most out of this it should always be distilled "on the grain" - do the stripping run as per my on grain cheating instructions in this guide.

Here is one of my favourite grain bills for a koji/chocolate forward whiskey, that I based off of a mugi Shōchū - my next experiment is to take my soba Shōchū and turn it into a whiskey, wish me luck!

Facters Omocha Whiskey grain bill

3kg White rice koji (try barley too, not as sweet but great nonetheless)

Still spirits whiskey yeast

4kg Maris Otter

2.5kg Light Munich malt

300g chocolate malt

300g medium crystal malt

300g rolled oats

Commercial examples of Whiskey made from Shochu and Awamori

Here are a few, but there are many more ...

- Fukano 12-Year-Old Single Sherry Cask
- Ohishi Sakura Cask
- Takamine
- Shibui 18-Year-Old Sherry Cask Single Grain - Kumesen
- Kujira - Kumesen
- Kura - Helios

References & Sources

I'll keep adding to these ...

- FissionC - thanks buddy!
- Facters Drive folder of downloaded Shōchū reference PDFs - coming soon
- Japan Distilled Podcast - <https://japandistilled.com/podcast-episodes/>
- Shōchū guide - <https://Shōchū.guide/about-Shōchū>
- Koji studies Textbook (Japanese only, and about 70% science kanji ☹) - <https://www.jozo.or.jp/booksales/item/jozo-0013/>
- Christopher Pellegrini - The Shōchū Handbook - An Introduction to Japan's Indigenous Distilled Drink <https://a.co/d/cs0vJ6E>

- Official honkaku Shōchū & awamori website - <https://honkakuShōchū-awamori.jp/english/>
- Distilling Shōchū - <https://www.nrib.go.jp/English/sake/esakefaq04.html>
- The story of Shōchū and how to distill - [https://www.semanticscholar.org/paper/Shōchū-1-\(-Summary-\)-History-How-to-distill-Shōchū/ae218cfadda8379531efd316ccc45c53c44f43b3](https://www.semanticscholar.org/paper/Shōchū-1-(-Summary-)-History-How-to-distill-Shōchū/ae218cfadda8379531efd316ccc45c53c44f43b3)
- Akita Konno mail order yeasts - <http://www.akita-konno.co.jp/en/seihin/06.html>
- Sake yeasts - <https://sake-world.com/about-sake/how-sake-is-made/the-yeast/>
- The craft of sweet potato Shōchū (YouTube) - <https://youtu.be/N9zHZ3LTLEI>
- All about Shochu - <https://youtu.be/QfvtbbfPXdM>
- Koji spores from Japan store - <https://thejapanstore.us/koji/what-is-koji>
- How to make Shōchū - <https://www.mtcsake.com/Shōchū-education/how-to-make-Shōchū>
- Kokuto Shōchū - <https://kanpai.us/kokuto-japans-delicious-dark-sugar/>
- How Satsuma makes Shōchū - <https://www.satsuma.co.jp/english/con-shiru-sehou.html>
- A guide to Awamori - classic Okinawan alcohol - https://gurunavi.com/en/japanfoodie/s/2017/09/guide-to-awamori.html?__ngt__=TT122cbd3b3005ac1e4ae61dZ5cKexp6yfGR6s1Dmamk6R

Coming soon .. home distilling ...

- soju
- baijiu ("light" rice & "strong flavour" sorghum)
- indonesian arak (rice & coconut syrup/sugar versions)
- Hmong Ruou (vietnamese corn whiskey)

I've done my best in this document to transfer all of my research and learnings into, relatively, simple instructions for those who want to try this as a part of their craft - this is just my method to get as close to the traditional "proper" way of doing it as possible in a non-traditional environment. I'm under no illusions that this is by any means "traditional" or even entirely accurate. It's a journey of discovery, and one that won't end anytime soon.

If you have any queries on this document, or further ideas, questions, addendums, or if you think I've fxd something up completely, or talking shit and have my facts wrong, please feel free to contact me on instagram @injasool

