

GETTING STARTED GUIDE TO GROWING OYSTER MUSHROOMS

If you need to wait a few days/weeks to start your mushrooms, just keep your mushroom culture in the fridge - it will be fine for a few months!

GATHER YOUR SUPPLIES

- Pre-cooked rice in a bag (Uncle Bens Brown Rice - They just rebranded to be called Ben's Original but a lot of stores still have the old packaging. Either is fine, as is whatever generic store brand they have as long as it's plain brown rice. Just to be clear, you want the pre-cooked brown rice that comes in small packages that you heat up in the microwave, it's not dry rice that you cook yourself!)
- Liquid Mushroom Culture (these instructions will work with any variety of oyster mushroom)
- Scissors
- 70% Isopropyl Alcohol. Peroxide works too!
- Paper Towel
- Paper Bandage Tape (Regular breathable first aid type bandage tape, sometimes called micropore tape)
- You'll want a small "misting" bottle for watering them while they're fruiting.



this is what you're looking for!

NOTE:

It's important to note here that there are many different ways to grow mushrooms, and many options for what to use as your growing medium (commonly referred to as "substrate.") The instructions I'm sharing here are the simplest, most no-frills way that I know of to do this. It's a great introduction and cuts out a lot of the sterilization work you'd normally need to do - If you're going for huge quantities or want to get more advanced, I would highly recommend investing in a pressure cooker and learning to prepare your own grain/other substrate bags as it is far more cost effective than buying dozens of bags of precooked rice, and various substrates and nutrients produce different results.

ON YOUR MARK, GET SET, GO!

STEP 1: STERILIZE EVERYTHING!

At least half an hour before getting started, turn off any fans and stop any strong breezes that may be going in your work area. You don't need any extra bacteria/mold/wild spores/microbes/anything getting moved around extra while you're working. The tiniest bit of contamination can mess up your project, and you won't know for a week or two. That said, this particular process is less prone to getting contaminated because it's all pretty well contained, so I generally just make sure there's not a lot of air blowing, I'm not working in a moldy space, and I wipe down everything including my hands with isopropyl alcohol before I do anything. Make sure you're wearing clean clothes!

You'll want to use the 70% isopropyl alcohol mentioned in the supply list to wipe down everything - your table or work surface, your bag(s) of rice and your scissors. Make sure your tape is open and sitting on a freshly disinfected surface so that it's easy for you to grab while you're working and you won't re-contaminate it by having to open the packaging while you're working. The tape itself comes sterilized, so you don't need to worry about that. If you don't have isopropyl alcohol on hand, you can use peroxide instead.

STEP 2: INOCULATION...

Make sure that you wiped down your liquid culture tube with isopropyl alcohol or peroxide! Use your scissors to cut a corner off of your rice bag to make an opening that's somewhere between 1/2" to 1" wide. Keep the corner pinched shut until you're ready to add the culture (A friend or a clothespin or paperclip can help with this.) The goal is to allow as little air in and out as possible while you are inoculating the bag to avoid introducing any airborne contaminants.

Shake your culture tube and open it close to the bag. Insert it into the corner that you cut off of the rice bag, and dispense 1mL of liquid culture into the bag. Immediately after injecting the liquid culture, grab a small piece of paper bandage tape and use it to close the hole you cut in the corner. This is to create an air filter to allow gas exchange for your mycelium as it grows.

Fungi breathe oxygen and release carbon dioxide, so our next step is to carefully add an extra air hole to the bag. Cut the other corner off of the other side of the top of the bag and tape it shut as well, this allows a little more air in.

MYCELIUM IS WHAT GROWS ON THE RICE WHEN YOU ADD LIQUID CULTURE TO IT! IT'S DEVELOPS IT'S OWN NETWORK THAT FORMS THE CENTRAL LIVING SYSTEM OF THE MUSHROOMS. THE ACTUAL MUSHROOMS THAT YOU'LL SEE IN A FEW WEEKS ARE JUST THE FRUITING BODY OF THAT SYSTEM.

Note: If your incubation time in step 3 seems to be taking too long, you can always try making your airholes a bit bigger, sometimes it indicates too little air exchange occurring. You just don't want the air holes to be too big or it will cause everything to dry out too much, so wait a while past your expected colonization date before you bother making the air holes bigger.

STEP 3: INCUBATION...

Usually it takes about 10 days for the liquid culture to fully colonize the bag of rice. The environmental factors in your home like heat and humidity play a big factor in this. I tend to keep things around 70 degrees/70% humidity in the closet that we keep our mushrooms in, but you'll be ok if your humidity is a little lower or your heat is a little higher. If you live in a very dry climate, you might want to use a tiny bit more liquid culture in the first place (like 1.5ml instead of 1ml) but in general it's not a big concern at this point. If it's too cold (below 60 degrees) it will colonize much more slowly or even stall as cold will make them go dormant) if it's too hot (above 80 degrees or so) you start risking having it rot or dry out too rapidly depending on your climate. Most of you won't run into issues with heat and humidity, but if it seems like your bag is taking a very long time to colonize, those are the culprits to look at.. Once in a while, environmental factors will cause your mushrooms to take much longer than usual. While it's not common to take so long, don't despair unless it's been more than 6 weeks and you still haven't seen any mycelium growth.

You'll be able to tell that it's colonizing by looking at the clear window on the bottom of the bag and after a week or so, hyphae will begin to form and you'll be able to see white stuff (mycelium!) growing on the rice! This is a good thing. If it has green/blue/black/red spots, it's definitely contamination and you'll have to throw it out and start over. If you see orange/yellow, it's most likely just minerals from the mycelium and you don't need to worry unless no white growth appears. Once the mycelium has colonized all of the rice (everything or 90+% of everything you see through the bottom window on the bag) is colonized, you're ready for fruiting!

STEP 4: FRUITING TIME!

Oysters like to be a bit warm while fruiting, I'd recommend keeping them between 65-85 degrees fahrenheit, but there's a tiny bit of wiggle room there. They don't need sunlight for energy, but it does seem to help nicer fruits to form if they happen to be in a room that has a little bit of light (as opposed to total darkness.) Oyster mushrooms grown in warmer temperatures tend to be larger (providing they're not too dry) and the more colorful varieties of oyster tend to have the brightest tones when they're grown in cooler temperatures, with the exception of pink, which prefer to be a bit warmer.

If you originally cut and taped the corners on the bag, you can just take the tape off and the oyster mushrooms will start growing through there. If you did the hole punch technique, just use a sharp knife to cut one or two 2" slits on each side the bag that are spaced out from each other.

Then just let it sit, spritz the outside of the bag with clean water every other day or so and in 5-7 days, you'll see tiny mushroom "pins" growing from the slits in the bag. Another 5-7 days and those pins will have transformed into beautiful mushrooms that are ready for you to eat. Just slice them off of the bag and enjoy!) You don't have to harvest them all at once, so if some look ready, it's ok to take those and let the others continue growing. After harvest, you can immerse your bag in water overnight to rehydrate it and then take it out and set it on a plate or tupperware, you may get another harvest or two by doing this. You should always cook your mushrooms before eating them, and there are many great recipes for cooking with them. I highly recommend diving into the culinary world of Youtube and looking at videos of chefs working with different types of oyster mushrooms - there are many interesting techniques to try!

STEP 5: THAT'S IT!

You probably have enough liquid culture left over to grow a bunch more, so rinse and repeat! There are many strains of mushrooms that have their own unique growing needs and are very fun to experiment with. They all have wildly different flavors - some taste earthy and nutty, others taste like sea food, some have the ability to consume plastic waste and others have amazing medicinal capabilities. There's a whole world there to explore, and I highly recommend diving deeper if this project interested you.

Please feel free to drop me a note if you run into any questions - If you ever have trouble growing them, please send me a note and I'll help sort it out. My email address is themushroomconservatory@gmail.com and you can always visit me online for more spores, cultures, notes and links at themushroomconservatory.com.

MYCOLOGY TERMINOLOGY

MYCOLOGY

The study of fungi.

CONTAMINATION

Anything unwanted in your substrate or culture media.

FUNGI

Any of a group of spore-producing organisms feeding on organic matter, including molds, yeast, mushrooms, and toadstools.

GAS EXCHANGE

The exchange of respiratory gases. Fungi breathe oxygen and release carbon dioxide.

GILLS

Mushroom gills are the thin, papery structures that hang vertically under the cap.
The sole purpose of these gills, called lamellae, is to produce spores.

HYPHAE

The individual cells of fungi. Tiny thread-like filaments that make up the mycelial network.
Each filament is a channel that can transfer water, nutrients, and information.

INOCULATE

Introducing mycelium to culture or spawn medium.

LIQUID CULTURE

Fragmented mycelium suspended in a liquid medium.

MYCELIUM

The vegetative part of the fungus that is composed of a vast network of hyphae.

SPORE

A microscopic, typically one-celled, reproductive unit of a fungus. Mushroom seeds

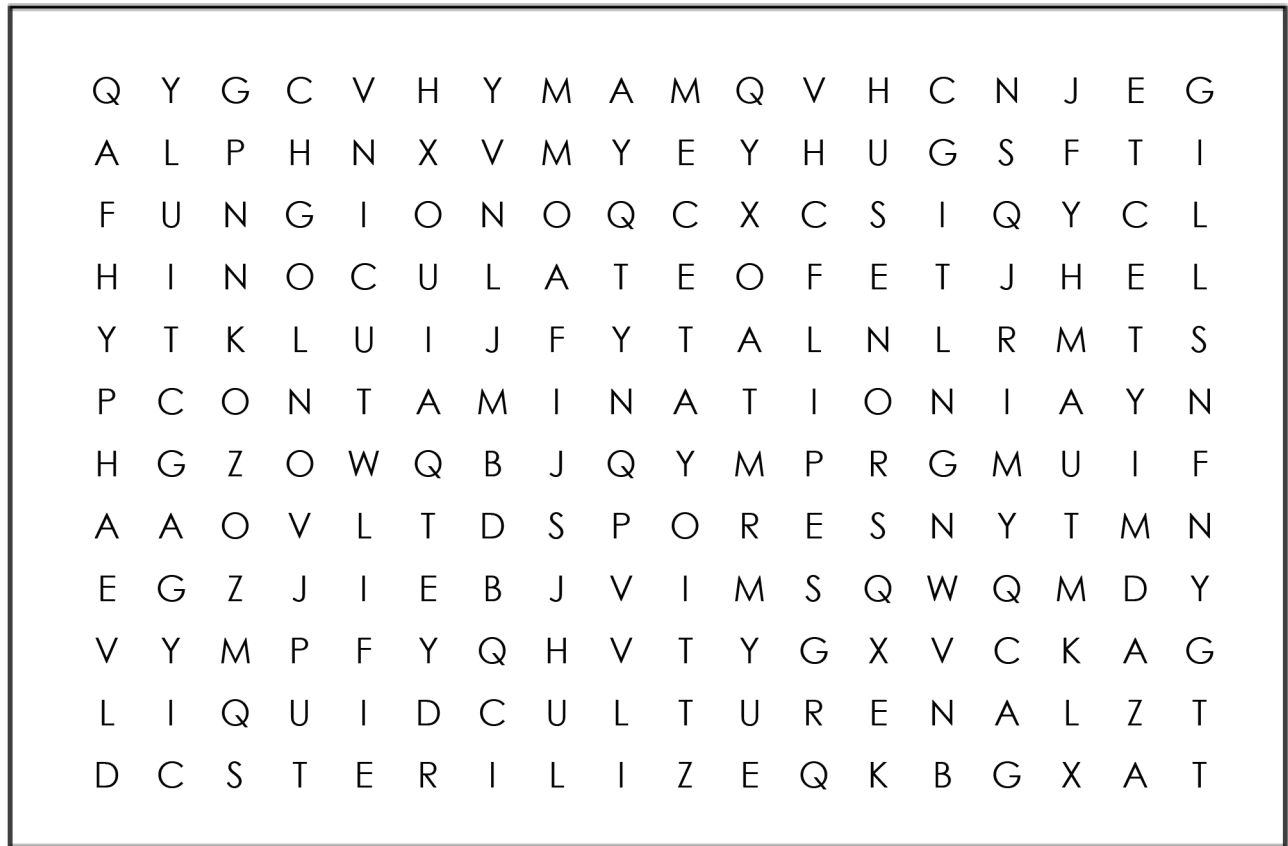
STERILIZE

To make objects or materials free of any living organisms.

STRAIN

A genetic variation of a fungal species.

FUNGI WORD SEARCH



Find the following words in the puzzle.
Words are hidden → ↓ and ↘ .

LIQUID CULTURE
CONTAMINATION
INOCULATE
STERILIZE

MYCOLOGY
MYCELIUM
HYPHAE
SPORES

STRAIN
FUNGI
GILLS



GROWING BUCKETS OF OYSTER MUSHROOMS

This is the way to grow if you've got space and want to grow a LOT of Oyster Mushrooms!!!

GATHER YOUR SUPPLIES

- A pack of Ben's Original Wholegrain Brown Ready Rice (enough for a gallon bucket, do two bags for a 5 gallon bucket.)
- Liquid Mushroom Culture (these instructions will work with any variety of oyster mushroom)
- A bucket with a lid (1 gallon or 5 gallon buckets from the hardware store are great. It's best to use a new bucket to avoid any possible residues from previous use, but as long as it's very clean, you'll be fine. Never use a bucket that has been used to store salt!)
- A second clean bucket with a lid (you'll only need this for a few hours to pasteurize your straw)
- Electric Drill (you'll want a roughly 1/2" drill bit)
- Straw! You can either buy chopped straw or get a bale of straw and cut it up into roughly 2" lengths. You'll need enough to densely fill your whole bucket.
- Pillowcase (don't plan on using it for pillows again. Flannel or cotton is best, microfiber is too water-repellant and won't work!)
- A piece of string about 12" long (could be twine, thin rope, cotton cord, whatever you have on hand)
- 70% Isopropyl Alcohol. Peroxide works too!
- Paper Towel
- Micropore tape (Just regular breathable first aid type bandage tape)
- You'll want a small "misting" bottle for watering them while they're fruiting.

COLONIZE YOUR GRAIN SPAWN AHEAD OF TIME

This process takes a bit of prep work. 3 weeks before you want to put your straw in buckets and begin the growing process, you'll need to start your grain spawn. This is the same process as you used to colonize your rice for growing your mushrooms in the rice bag. Please follow steps 1-3 from the instructions for growing oyster mushrooms in a bag of rice. Once the bag of rice is fully colonized, it's ready for step 1.

STEP 1: PREP YOUR BUCKETS

Use a 1/2" drill bit in an electric Drill 6 to 8 holes in the sides of your gallon bucket or 16 to 20 holes in the sides of your five gallon bucket. You'll want the holes well spaced out evenly around the bucket. I'd suggest two rows of holes on a gallon bucket (one row a few inches from the top, one a few inches from the bottom) and three rows on a five gallon bucket. Stagger the rows so that the holes are all evenly as far from each other as possible. When you're done, wipe down the bucket and the lid with rubbing alcohol or peroxide. Cover each hole from the outside with a square of paper bandage tape (it creates a filter so that your mycelium can get a bit of air/gas exchange, but the bad stuff can't get in. Put the lid back on until you're ready to use the bucket so that it stays clean.

STEP 2: PASTEURIZE YOUR STRAW

You'll save a lot of time if you can buy chopped straw/straw mulch. If you can't get it or would prefer to do the work yourself, get a bale of straw and use shears or something similar to cut your straw into approximately 2" lengths. You're going to need enough to firmly pack your bucket within a few inches of the top.

Put all of the straw that you'll be using into a pillowcase, tie it shut with your string and put it in your secondary bucket/stock pot (if you're doing a gallon bucket, you'll be able to do this all at once, you may need to do a few batches of straw to make enough for your bucket if you're doing a 5 gallon bucket.) Boil enough water to cover your pillowcase full of straw, put said pillowcase full of straw in the secondary bucket and CAREFULLY pour the hot water over the pillowcase in the bucket/stock pot and put the lid on it. Leave it in there for an hour, then you can drain the water out (outdoors, bathtub or kitchen sink are the best places for this part.)

STEP 3: FILL YOUR BUCKET

Once your straw has cooled enough to handle, put a few inches of it into the bottom of the bucket you drilled the holes in. Open the bag of grain spawn you've been cultivating and crumble a bit of it (like maybe 1/8 of it) over the straw, put a few more inches of straw over that, pat it down and repeat. Do this until you've used up all of your straw and grain spawn. Put the lid on, make sure all of the holes are still covered with tape and put the bucket in a quiet corner where it can colonize for a few weeks. Keep your bucket between 60-80 degrees, check on it every so often. Usually it will take between 10-21 days to fully colonize, you'll know they're ready when all of the straw is covered with white mycelium the same way your grain spawn was (with the exception of pink oysters, who's mycelium can be slightly more pink and more transparent.)

STEP 4: FRUIT & HARVEST

Once everything is colonized, remove the paper tape from the outside of the holes on the bucket. Keep the lid on. Use the misting bottle to spray above each hole 2-3 times a day (more often if you're in a very dry climate) After a week or so, you'll see tiny pins peeking out. Continue misting a few times a day (mist at the bucket plastic, not directly on them!) After another week or so, your pins will transform into beautiful mushrooms that are ready to cook with. Harvest them when their caps begin to flatten and curl upwards.