

# GETTING STARTED GUIDE TO GROWING LIONS MANE 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

- Brown Rice - Prepare your rice by cooking brown rice about 5 minutes less than the instructions say to, and put it in a quart-sized-freezer zip bag when the rice is still hot. (fill the bag about halfway up with cooked rice) squeeze out excess air and zip it closed. Allow to cool thoroughly and then proceed. You could always use a larger freezer bag with more rice, it will just take slightly longer to colonize.  
(Note: if you'd like to skip preparing the rice yourself, Ben's Original Wholegrain Brown Rice is great (the kind that's precooked) Any generic brand they have as long as it's plain brown rice is fine too as long as there is no more than 7mg of sodium in the bag. )
- Liquid Mushroom Culture
- 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.

## 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 (CREATING GRAIN SPAWN)

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. (if you're cooking your own rice for this and have it in a zip bag, tape the zip part shut and flip it upside down to cut one of those corners so that you're not cutting through the zip on the bag) keep this 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 to fruit mushrooms directly from the bag, or you can skip to the other pages in this guide to use the grain spawn you've made to grow your mushrooms from buckets of straw or even in an outdoor straw mushroom garden bed.

### **STEP 4: FRUITING MUSHROOMS FROM YOUR BAG OF RICE**

Fruiting them directly from the bag of rice will yield the smallest harvest, but it's a fun way to grow some quickly and get a feel for how it works. Lions Mane Mushrooms are fairly flexible on temperatures while fruiting, I'd recommend keeping them between 60-70 degrees fahrenheit, but there's a significant bit of wiggle room there and they'll be ok if they're a bit cooler or hotter. 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.) Mushrooms grown in warmer temperatures tend to be larger (providing they're not too dry) just don't let them get too hot or they'll begin to wilt.

Use a sharp knife to cut a one or two inch X in the front of the bag. You could even do two X cuts on a larger bag, just give them some space in between.

Then just let it sit, spritz the outside of the bag with clean water every day, fan it with a piece of cardboard or something similar to simulate wind (you're basically simulating a spring rainstorm with rain and breeze) and in 5-7 days, you'll see tiny mushroom "pins" growing from the slits in the bag. If you're in a very dry area, you can put a damp washcloth on top of the bag (not blocking air holes) or even put a larger plastic bag (cut a few air holes in it) over the top of your rice bag to help keep the humidity up. 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 lions mane mushrooms - there are many interesting techniques to try! If you grow more mushrooms than you can eat at once, consider putting them in a dehydrator so that you can store them for long term enjoyment.

### **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. The techniques in these instructions work well for Lions Mane, Oyster and Ennoki mushrooms, so have fun exploring the possibilities!

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](mailto:themushroomconservatory@gmail.com) and you can always visit me online for more spores, cultures, notes and links at [themushroomconservatory.com](http://themushroomconservatory.com).

# GROWING BUCKETS OF LIONS MANE MUSHROOMS

*(This is the way to go if you'd like to grow a LOT of Lions Mane mushrooms, indoors or out)*

## GATHER YOUR SUPPLIES

- Grain spawn that you made in the getting started guide on page 1
- 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 pasturize your straw)
- Electric Drill (you'll want a roughly 1/2" drill bit - if you use a laundry basket or ice cream tub, it probably has holes or is thin enough to poke holes in, thereby skipping the need to drill a bucket.)
- Straw! You'll need enough to densely fill your whole bucket. If you can't buy it in bales in your area, check pet and farm stores for bags of chopped straw (you could use aspen wood chips meant for pet bedding too, and used coffee grounds will also work - if you use the grounds within a few days of the coffee having been brewed, you don't need to worry about pasteurizing the grounds the way you do with the straw, so if you do that, just skip ahead to layering the grounds with the grain spawn that you made! )
- 70% Isopropyl Alcohol. Peroxide works too!
- Paper Towel

## 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 (if you're using coffee grounds instead of straw, skip this step!)

You're going to need enough straw to fill your bucket somewhat firmly, about 80% full.

Put all of the straw that you'll be using into a bucket similar in size to the one you've put holes in, but without holes. Boil enough water to cover your straw (it may take a few pots worth of water, it's fine to add some then boil more, add some then boil more), CAREFULLY pour the hot water over the straw in the bucket/stock pot and put the lid on the bucket.

## STEP 3: LAYER 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.

## 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 - you can even set a damp towel on top of the bucket or put a plastic bag with some air holes cut in it over the top of the bucket if things seem too dry!) 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.

# 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.



Welcome to The Mushroom Conservatory, a place where curiosity and passion for fungi converge. Our mission is to inspire exploration by teaching people how to grow, learn, and experiment with cultivating mushrooms in their own homes. We believe that fungi have the potential to transform our world by producing food, sustainable biofuels, and restoring ecosystems. Growing mushrooms is a meditative process that encourages a more present, caring way of life.

At The Mushroom Conservatory, we are dedicated to regenerative agriculture, food security, and promoting independent food production. By integrating oyster mushrooms into these practices, we help create a more sustainable and self-sufficient food system. Oyster mushrooms not only provide a nutritious and delicious food source, but also contribute to soil health by breaking down organic matter and supporting nutrient cycling. Through our commitment to mycology and sustainable living, we strive to create a brighter future for both our planet and its inhabitants.

We are a woman-owned, family operated business from Michigan and we're honored to support your journey into the fungi kingdom and all of the wonderful foods, flavors and possibilities that you'll discover within it.

If you run into questions, you'll often find the answers on our site - [themushroomconservatory.com](http://themushroomconservatory.com) and we're always delighted to hear from you - send us a note any time via email: [grow@themushroomconservatory.com](mailto:grow@themushroomconservatory.com)

## **DID YOU KNOW?**

**MUSHROOMS ARE MADE OF ABOUT 80% WATER**

**OYSTER MUSHROOMS HAVE BEEN FOUND TO HAVE A LANGUAGE OF THEIR OWN WITH AT LEAST 50 WORDS**

**MYCELIUM IS THE UNDERGROUND COMMUNICATION NETWORK OF THE FOREST**

**MUSHROOMS ARE ONE OF THE ONLY KNOWN NON-MEAT SOURCES OF VITAMIN D**

**THE FUNGI KINGDOM HOLDS ENDLESS POSSIBILITIES IN FOOD, SUSTAINABILITY AND THE FUTURE OF THE PLANET**

# FUNGI WORD SEARCH

Q Y G C V H Y M A M Q V H C N J E G  
A L P H N X V M Y E Y H U G S F T I  
F U N G I O N O Q C X C S I Q Y C L  
H I N O C U L A T E O F E T J H E L  
Y T K L U I J F Y T A L N L R M T S  
P C O N T A M I N A T I O N I A Y N  
H G Z O W Q B J Q Y M P R G M U I F  
A A O V L T D S P O R E S N Y T M N  
E G Z J I E B J V I M S Q W Q M D Y  
V Y M P F Y Q H V T Y G X V C K A G  
L I Q U I D C U L T U R E N A L Z T  
D C S T E R I L I Z E Q K B G X A T

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

LIQUID CULTURE  
CONTAMINATION  
INOCULATE  
STERILIZE

MYCOLOGY  
MYCELIUM  
HYPHAE  
SPORES

STRAIN  
FUNGI  
GILLS

