



**Redwood
Mushroom
Supply**

Beginner's Guide to Mushroom Cultivation

The Easiest Way to Grow Mushrooms



Introduction

Welcome to the wild world of mushroom cultivation. The method we are teaching in this Guide is intended to be the easiest version of mushroom growing, with the minimum equipment and the fewest steps, and therefore the fewest chances for something to go wrong.

For intermediate and advanced mushroom growers, there are many, many levels of complexity, with chances to refine technique, develop expertise and preferences, speed up colonization, and get bigger and multiple flushes. But that's not what we're teaching in this Guide¹. Not yet.

Think of this as the “training wheels” guide to Mushroom Cultivation. It's important that we give you the thrill of success, while introducing you to the basic steps and concepts of the mushroom growth cycle, without overwhelming you. Otherwise you may wind up feeling disappointed, and miss out on just how amazing growing mushrooms can be, and we can't have that.



NOTE: We recommend reading through this full Guide before you start, to be sure you understand and are prepared for all steps. If anything is still unclear, please reach out to us at contact@redwoodmushroomsupply.com

¹ For intermediate and advanced growers, we also provide Advanced Fruiting Guides for each species in separate documents. Of course, you still might want to read through this Guide for some of **Redwood Mushroom Supply's** tips and tricks.



Beginner's Steps:

Process Overview

STEP 1: INOCULATION

The first step to growing mushrooms is to inoculate your all-in-one grow bag or wood-based substrate with a liquid culture syringe.

STEP 2: COLONIZATION

Once you have successfully inoculated your grow bag, place it in a clean, warm, and dark area, and monitor it, while you wait for the mycelium to grow and colonize the substrate in the bag. This process will take around 3 to 5 weeks depending on the type of mushroom being grown.

STEP 3: FRUITING

When fully colonized, expose your substrate to controlled fresh air, light, and humidity to promote the growth of the fruiting bodies (mushrooms).

STEP 1: INOCULATION

Introducing your mushroom liquid culture into its new home requires care and cleanliness. This is the make-or-break moment for your mushroom grow, so be sure to take it slow, work in a clean area, and disinfect everything!

Before you start, inspect your grow bag for any discoloration of the substrate, a sign that something may already be growing in it - sometimes sterilization isn't 100% successful. It's also a good practice to check the bag for any rips, or pinholes that may have appeared after production. If you have a question or are concerned about your bag, you can reach out to us at contact@redwoodmushroomsupplies.com.

EQUIPMENT CHECKLIST

- ALL-IN-ONE GROW BAG OR WOOD-BASED SUBSTRATE, WITH INJECTION PORT
- MUSHROOM LIQUID CULTURE SYRINGE
- 70% ISOPROPYL ALCOHOL
- SPRAY BOTTLE
- PAPER TOWELS
- RUBBER OR NITRILE GLOVES
- TAPE

LIQUID CULTURE INSTRUCTIONS

- 1. PREPARE YOUR ENVIRONMENT** Wash your hands and put on a pair of disposable gloves. Thoroughly disinfect your workspace and gloves with 70% isopropyl alcohol. Your workspace should be clear of clutter and ideally in a room with low airflow.



***Note:** Maintaining a clean environment is essential for successful inoculation and optimal culture growth. Failure to disinfect thoroughly and carefully or working in a dirty area may result in contamination and a failed grow.*



***Mycologist's Tip:** Using a still air box or flow hood can significantly improve success rates by having a dedicated clean space.*


- 2. DISINFECT PACKAGING** Spray syringe and needle packaging thoroughly with 70% isopropyl alcohol.
- 3. ASSEMBLE SYRINGE** Remove the round cap from the liquid culture syringe and quickly attach the needle by twisting to lock it in place. Leave the guard on the needle until you're ready to inoculate.
- 4. DISINFECT BAGS** Thoroughly disinfect bag to be inoculated using 70% isopropyl alcohol. Wipe injection port with an alcohol wipe prior to injection. Take care not to spray the white filter patch on the bag directly.
- 5. INOCULATE** Carefully remove the needle guard and inject the entire culture through the injection port. Do not use a single syringe to inoculate multiple bags, as it can cause contamination.
- 6. DISPOSE OF NEEDLE** Recap the needle and properly dispose of it in a sharps container.
- 7. COVER INJECTION PORT** Place a small piece of tape over the injection port to cover the injection area.

STEP 2: COLONIZATION

Once you've inoculated your bag, it's time to wait for the mycelium you've injected to do its thing and colonize the substrate.

It's best to keep your grow bag undisturbed in a clean, dark, and warm location, away from any potential sources of contamination.

Remember, one of the most important parts of colonization is patience. The process can take around 3-5 weeks depending on the type of mushroom you are growing. At 2 weeks, you can break up and re-distribute the mycelium to help encourage faster growth.


 **Note:** During this process, you may see your bag "inflate" with CO₂. This is perfectly normal, and shows that there is activity in your grow bag, as mycelium exhales CO₂.

EQUIPMENT CHECKLIST

- HEAT MAT (IF NEEDED)
- THERMOMETER (OPTIONAL)

COLONIZATION INSTRUCTIONS:

- 1. COLONIZATION AREA SETUP** Place the inoculated substrate bag in a clean, dark area that can maintain a temperature of 70-75°F - if it's too cold, your mycelium may grow slowly; too hot, and you may kill the mycelium.

 **Note:** You can use a heat mat to improve the temperatures in and around your area, but do not place the bag directly on the heat mat. You can place a clean towel or other heat-dispersing material between the mat and bag if needed.

- 2. COLONIZATION** Monitor the substrate bag for growth - while it may take some time for white mycelium to begin to be visible, you will see growth accelerate rapidly once it begins. Full colonization generally takes 3 to 5 weeks under ideal temperature range.

Most mycelium is a bright, vibrant white color that stands out from the darker colored substrates. Once your bag has about 20-30% colonized with white mycelium, you can move to the Break and Shake step.

- 3. BREAK AND SHAKE (OPTIONAL)** Once your bag is 20-30% colonized (about 2-3 weeks), you can break up any developed mycelium clumps in the substrate to help speed up the process using the Break and Shake method.



FULLY COLONIZED BAG

STEP 2: COLONIZATION *continued*

BREAK AND SHAKE METHOD (OPTIONAL)

- 1. CLEAN WORK AREA** Take your bag to a clean, uncluttered area.
- 2. DO NOT OPEN THE BAG.**
- 3. GENTLY BREAK UP CLUMPS** Using your fingers, break up any clumps of mycelium you find in the substrate. Be careful not to puncture or tear the bag.
- 4. SHAKE AND SHAPE** Once you've broken up all clumps in the substrate, shake to mix thoroughly, and lightly compress back into a block shape. Place your substrate bag upright in your colonization area until fully colonized.
- 5. MONITOR TEMPERATURES** Be sure to regularly check temperatures to ensure your substrate bag is within the recommended range.



***Mycologist's Tip:** A laser thermometer is a quick and easy way to identify substrate temperatures.*

Once your entire bag is colonized with bright white mycelium, you are ready for the next step!



WHAT IF MY BAG ISN'T GROWING?

- 1. AFTER ABOUT 2 WEEKS**, if you do not see growth, or growth is stalling in a certain area, inspect your bag for any signs of contamination, such as bright green mold. Remember - mycelium is a vibrant white in most species. If contamination is present, you'll likely need to start over with a new bag.



***Note:** Contamination will typically present itself as black or green mold.*

- 2. TRY BREAK AND SHAKE** If you don't see any signs of mold or contamination, and you have not already performed a "Break and Shake", now would be a good time. There may be clumps of colonized substrate that you cannot see inside the block.



***Note:** If you still do not see growth after 4 weeks, and your temperatures appear correct with no visible signs of contamination, please contact us for support at contact@redwoodmushroomsupply.com*

STEP 3: FRUITING

Once the substrate bag is fully colonized, you're ready to fruit your mushrooms by creating a fruiting environment outside of their original bag.

Creating an ideal fruiting environment for most mushrooms requires 3 things:

- **HIGH HUMIDITY** -85-95% stops mushrooms from drying out².
- **FRESH AIR** allows mushrooms to breathe.
- **GENTLE LIGHT** tells mushrooms where to grow and is a signal to begin fruiting.

A fruiting chamber is a controlled environment that creates the ideal conditions for mushroom growing. It can be as simple as a large bag with holes in it that helps maintain humidity while still allowing your mushrooms to breathe. More advanced growing setups typically use additional equipment such as a humidifier, fan, and grow tent enclosure to create ideal conditions.

For our *Lion's Mane* and *Oyster Mushroom kits*, we've included an additional Fruiting Chamber Bag for you to place your colonized substrate bag inside. Refer to those Fruiting Guides for instructions on using this bag as your fruiting chamber.

Once you have created your fruiting environment, proceed by following the steps outlined for the specific mushroom species you are cultivating.



Remember: *Mushrooms grow rapidly once fruiting has begun - many species exhibit significant growth in just 24 hours, once growth has begun.*

FRUITING TECHNIQUES

SIDE FRUITING

For mushrooms like Lion's Mane and Oyster mushrooms, side-fruiting is preferred. These mushrooms grow best when they can develop horizontally from the substrate. To initiate fruiting, use a clean knife to make one long incision across the front of the substrate bag. Cutting into the substrate is perfectly fine, and even recommended. Your mushrooms will begin to grow from this cut!

EQUIPMENT CHECKLIST

- FRUITING CHAMBER BAG (IF NEEDED)
- COLONIZED SUBSTRATE BAG
- GLOVES
- CLEAN KNIFE OR SCISSORS
- LARGE RUBBER BANDS OR TAPE
- SPRAY BOTTLE
- DISTILLED WATER



¹ See Fruiting Guides for humidity, air flow, and light needs of the species you are cultivating

STEP 3: FRUITING *continued*

SIDE FRUITING *continued*

After you make your cut, place your colonized substrate bag into a Fruiting Chamber bag to maintain high humidity and promote airflow - this prevents your mushrooms from drying out and stretching to reach for fresh air as they grow.

TOP FRUITING

For mushrooms like Pioppino and Reishi, top fruiting is recommended as they grow best when they fruit upwards from the "top" surface of the substrate. These mushrooms are ideal candidates for fruiting in bag. Top fruiting mushrooms can be fruited using a fruiting chamber bag, or simply using the original substrate bag to achieve similar conditions.

To initiate fruiting in the bag for top fruiting mushrooms, begin by cutting a small 1" slit beneath the filter patch on your fully colonized substrate bag. The cut will allow for fresh air exchange while still maintaining humidity using the original substrate bag. Once you see small mushrooms growing, refer to your specific fruiting guide for further instructions.



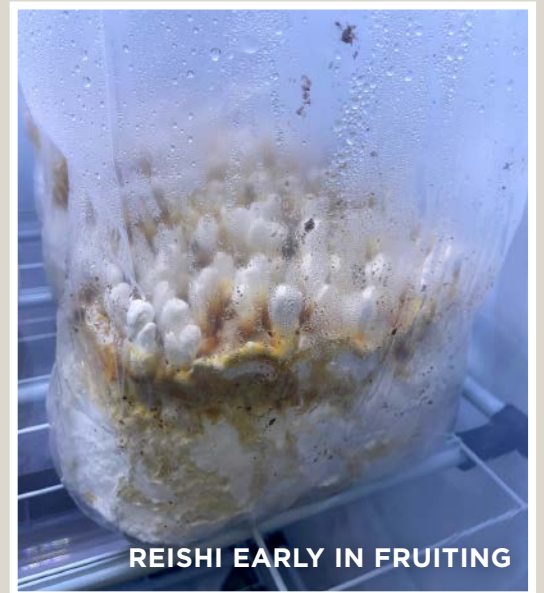
Note: *While sterility is not a major concern at this point, try to reduce contact with your mushrooms as much as possible, and wear gloves when handling your fruiting block. Over exposure or handling of early mushrooms can lead to bacterial or fungal contamination, so don't overdo it on the spraying and fanning.*

FRUITING GUIDES

The following pages contain Guides which outline the optimal growing conditions, fruiting instructions, and harvesting tips for individual mushroom species. These instructions are loosely based on the fruiting parameters provided by Paul Stamets in his book, *Growing Gourmet and Medicinal Mushrooms, 3rd Edition*.



TOP FRUITING: PIOPPINO



REISHI EARLY IN FRUITING



REISHI FRUITING IN-BAG

Fruiting Guide

BLUE OYSTER

Pleurotus ostreatus

FRUITING PREFERENCES

SUBSTRATE	Fast Fruiting/Masters Mix, Straw
TEMPERATURE	60-70°F
HUMIDITY	85-90%
FRESH AIR EXCHANGE	High
CO2 TOLERANCE	<1,000 ppm
FRUITING LOCATION	Side

FRUITING INSTRUCTIONS

PREPARE FRUITING CHAMBER

Modify your included empty Fruiting Chamber Bag by cutting 8 to 12 holes, ½ " in length into one side of the bag. Space evenly in both height and width of side, ideally in a grid.

PREPARE SUBSTRATE BAG

1. Make a small cut into the top corner of your colonized substrate bag and release any air.
2. With the filter facing you, fold excess bag material around the back of substrate block.
3. Secure the excess bag material using rubber bands or tape to create a nice snug fit - excess air space away from the site of the cut can cause mushrooms to grow in the wrong place.

CUT SUBSTRATE BAG

1. Cut bag of your colonized substrate block using a clean knife, making a single 6" horizontal cut across the long, front side of your bag. This is where your mushrooms will grow out of.
2. We recommend fruiting Oysters from the side to complement their natural fruiting habits, utilizing a large cut for maximizing cluster size.

PLACE SUBSTRATE BAG IN FRUITING CHAMBER BAG

1. Place the substrate block bag into the empty Fruiting Chamber bag, ensuring the cut is not face down, and the opening in the substrate bag is facing away from the airholes in your Fruiting Chamber bag.
2. Spray the inside of the Fruiting Chamber bag with distilled water.
3. Close the top of the Fruiting Chamber bag using a rubber band or a twist-tie.
4. Place the bag in a well-lit area out of direct sunlight, at room temperature (65-75°F ideally).



BLUE OYSTER *continued*

DAILY MAINTENANCE

MONITOR FOR GROWTH. Once you see tiny mushrooms (also called “pins”) begin to form, you can now open the bag and spray the inside of the bag daily as it grows to maintain high humidity. Avoid spraying the mushrooms directly.



NOTE: *Opening the bag daily to spray helps refresh oxygen and humidity in the bag. Ensure you have clean hands or wear gloves and minimize direct contact with the mushrooms and substrate. Close the bag when finished.*



Mycologist's Tip: *If your mushrooms appear stretched with long, thin stems, your mushrooms may be asking for more air flow. Move the developing mushrooms closer to the air holes in the fruiting chamber bag and spray more frequently.*

HARVEST TIPS

1. RAPID GROWTH: Oyster mushrooms grow very rapidly and typically are ready to harvest just 3-5 days after they begin to fruit. This phase is always fascinating to watch!

2. WHEN TO HARVEST: Oyster mushrooms are ready to harvest just before the edges of their caps flatten out. Once the edges of the caps flatten or turn upwards, the mushrooms are past their prime.



NOTE: *Oysters are known for their heavy spore load. Timely harvesting helps to prevent these spores from contaminating your growing environment.*

3. HOW TO HARVEST: Harvesting oysters can be done by twisting the clusters at the base, or by gently running a sharp disinfected knife along the base of the cluster.



PINNING OYSTERS



READY TO HARVEST



“OVERCOOKED” BLUE OYSTERS

Fruiting Guide

GREY OYSTER

Pleurotus pulmonarius

FRUITING PREFERENCES

SUBSTRATE	Fast Fruiting/Masters Mix, Straw
TEMPERATURE	65-75°F
HUMIDITY	85-90%
FRESH AIR EXCHANGE	High
CO2	400-800 ppm
FRUITING LOCATION	Side



FRUITING INSTRUCTIONS:

PREPARE FRUITING CHAMBER

Modify your included empty Fruiting Chamber Bag by cutting 8 to 12 holes, ½" in length into one side of the bag. Space evenly in both height and width of side, ideally in a grid.

PREPARE SUBSTRATE BAG

1. Make a small cut into the top corner of your colonized substrate bag and release any air.
2. With the filter facing you, fold excess bag material around the back of substrate block.
3. Secure the excess bag material using rubber bands or tape to create a nice snug fit - excess air space away from the site of the cut can cause mushrooms to grow in the wrong place.

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1. Place the substrate block bag into the empty Fruiting Chamber bag, ensuring the cut is not face down, and the opening in the substrate bag is facing away from the airholes in your Fruiting Chamber bag.
2. Spray the inside of the Fruiting Chamber bag with distilled water.
3. Close the top of the Fruiting Chamber bag using a rubber band or a twist-tie.
4. Place the bag in a well-lit area out of direct sunlight, at room temperature (65-75°F ideally).

GREY OYSTER *continued*

DAILY MAINTENANCE

Monitor for growth - once you see tiny mushrooms (also called “pins”) begin to form, you can now open the bag and spray the inside of the bag daily as it grows to maintain high humidity. Avoid spraying the mushrooms directly.



NOTE: *Opening the bag daily to spray helps refresh oxygen and humidity in the bag. Ensure you have clean hands or wear gloves and minimize direct contact with the mushrooms and substrate. Close the bag when finished.*



Mycologist's Tip: *If your mushrooms appear stretched with long, thin stems, your mushrooms may be asking for more air flow. Move the developing mushrooms closer to the air holes in the fruiting chamber bag and spray more frequently.*

HARVEST TIPS

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3. HOW TO HARVEST: Harvesting oysters can be done by twisting the clusters at the base, or by gently running a sharp disinfected knife along the base of the cluster.



PINNING OYSTERS



READY TO HARVEST



“OVERCOOKED” GREY OYSTERS

Fruiting Guide

LIONS MANE

Hericium erinaceus

FRUITING PREFERENCES

SUBSTRATE	Hardwood, Fast Fruiting/Masters Mix
TEMPERATURE	65-75°F
HUMIDITY	90-95%
FRESH AIR EXCHANGE	High
CO2	500-1,000 ppm
FRUITING LOCATION	Side



FRUITING INSTRUCTIONS

PREPARE FRUITING CHAMBER

Modify your included empty Fruiting Chamber Bag by cutting 8 to 12 holes, ½" in length into one side of the bag. Space evenly in both height and width of side, ideally in a grid.

PREPARE SUBSTRATE BAG

1. Make a small cut into the top corner of your colonized substrate bag and release any air.
2. With the filter facing you, fold the excess bag material around the back of substrate block
3. Secure the excess bag material using rubber bands or tape to create a nice snug fit - excess air space away from the site of the cut can cause mushrooms to grow in the wrong place.

CUT SUBSTRATE BAG

1. Cut your colonized substrate block using a clean knife, making a single 6" horizontal cut across the long, front side of your bag. This is where your mushrooms will grow out of.
2. We recommend fruiting Lion's Mane from the side to complement their natural fruiting habits, utilizing a large cut for maximizing cluster size.

PLACE SUBSTRATE BAG IN FRUITING CHAMBER

1. Place the substrate block into the empty Fruiting Chamber bag, ensuring the cut is not face down.
2. Spray the inside of the Fruiting Chamber bag with distilled water.
3. Close the top of the Fruiting Chamber bag using rubber bands or a twist-tie.
4. Place the bag in a well-lit area out of direct sunlight, at about room temperature (60-70°F ideally).

LIONS MANE *continued*

DAILY MAINTENANCE

1. Monitor for growth and spray the inside of the bag (not the mushroom itself) as it grows to maintain high humidity.
2. Opening the bag daily to spray helps refresh oxygen and humidity in the bag, but wear gloves and try to minimize direct contact with the mushrooms and substrate where you can. Close the bag when finished.

HARVEST TIPS

1. Lion's Mane mushrooms are ready to harvest when the icicle-like spines hanging from the fruit body are developed and still pristine white, about 2-3 weeks after they begin to emerge from the block. As Lion's Mane matures further, the tips of the spines may start to turn yellow or brown, suggesting it is past its prime harvesting stage.
2. To harvest, gently grab the entire cluster and twist it off the substrate, or carefully remove with a disinfected knife where the mushroom grows out of the substrate.



LIONS MANE: READY TO HARVEST

Fruiting Guide

PIOPPINO

Cyclocybe aegerita

FRUITING PREFERENCES

SUBSTRATE	Fast Fruiting/Masters Mix
TEMPERATURE	55-65°F
HUMIDITY	90-95%
FRESH AIR EXCHANGE	High
CO2 TOLERANCE	<2,000 ppm
FRUITING LOCATION	Top



FRUITING INSTRUCTIONS

MODIFY SUBSTRATE BAG TO TRIGGER PINNING

1. We recommend top fruiting Pioppino in the bag - the bag creates the ideal environment for growth with slight modification, and no secondary bag is needed.
2. Place a rubber band around the sides of the bag, near the top of the substrate. This will minimize air exposure to the sides of the substrate where we do not want mushrooms to grow.
3. Make three 1" cuts at the top of the colonized substrate bag. This allows for introduction of fresh air while accumulating carbon dioxide to favor the development of tiny mushroom fruiting bodies known as "pins" or primordia.

PLACE BAG IN IDEAL ENVIRONMENT

Place the bag in a clean and well-lit area out of direct sunlight, at about room temperature. Keep the bag mostly closed until you see small mushrooms developing.

INCREASE AIRFLOW FOR FRUITING

As your mushrooms begin to grow, you can do one of two things:

1. **MAKE A HORIZONTAL 2" CUT** in the bag, just below the filter patch. This improves airflow where your mushrooms fruit and prevents stretching higher up for oxygen.
2. **OPEN THE BAG.** Opening the bag daily to spray and fan helps refresh oxygen in the bag and keeps humidity high.
 - A. Cut open the top and fan to replenish oxygen in the bag, then spray the sides with distilled water to replenish humidity.

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PIOPPINO *continued*

- B.** Try to minimize direct contact with the mushrooms while they grow, and avoid spraying mushrooms directly.
- C.** Roll and lightly clip to maintain humidity when you are done.
- D.** Repeat once per day.

HARVEST TIPS

- 1.** Pioppino mushrooms are typically ready for harvest 4-6 days after pins emerge. For the best texture and flavor, it's ideal to harvest just before the veil—a thin tissue connecting the stem to the cap—breaks, and while the cap edges are still slightly curved inward.
- 2.** To harvest, firmly grasp the base of the mushroom cluster and pull with a slight twist until it releases from the substrate.



PIOPPINO: VEIL BROKEN



PIOPPINO: READY TO HARVEST

Fruiting Guide

REISHI

Ganoderma lucidum

FRUITING PREFERENCES

SUBSTRATE	Hardwood, Fast Fruiting/Masters Mix
TEMPERATURE	65-70°F (Antler), 70-80°F (Conk)
HUMIDITY	90-95%
FRESH AIR EXCHANGE	Low
CO2	"Antler" Formation: > 20,000 ppm
FRUITING LOCATION	Top

FRUITING INSTRUCTIONS

PREPARE SUBSTRATE BAG

Place a rubber band around the sides of the bag, near the top of the substrate. This will minimize air exposure to the sides of the substrate where we do not want mushrooms to grow.

FRUITING

1. We recommend top fruiting Reishi inside a sealed grow bag to allow carbon dioxide to accumulate in the substrate bag, which will favor development of antler fruit formations; cutting the bag is not required for Reishi.
2. Keep the substrate bag fully sealed. Reishi does not require the transition to an external fruiting chamber in the same manner as other species
3. Place the colonized substrate bag in an area with at least 12 hours of light per day to stimulate the development of fruiting bodies. Ideally in a location with indirect sunlight, or direct artificial light. Reishi will grow straight towards the light!
4. After a few weeks, you'll notice bumps on the surface of the substrate, these are the beginnings of your Reishi mushrooms.
5. Allow the mushrooms to develop within the sealed bag under the provided light schedule for 2-3 months until they reach the desired size.



REISHI *continued*

DAILY MAINTENANCE

Admire the growth of your beautiful Reishi mushrooms (*This is a requirement.*)

HARVEST TIPS

1. Allow your Reishi mushrooms to grow until they have fully matured, typically 10-14" in height. Using sharp scissors or a knife, carefully cut the mushrooms just above the substrate. This is best done before the mushrooms dry out, as Reishi is exceptionally tough.
2. Reishi mushrooms are best used when dried and incorporated into teas or tinctures.
3. You can also dry the entire block to create a magnificent sculpture to display in your home.



REISHI - ANTLERS: READY TO HARVEST