



**Redwood
Mushroom
Supply**

Beginner's Guide to Cultivating Mushrooms on Logs

**An Easy, Low-Tech Method to Grow
Mushrooms in your Garden**



Introduction

Welcome to the fascinating world of mushroom cultivation! This guide introduces the process of growing mushrooms on logs with plug spawn—a simple yet effective technique for outdoor mushroom growing. Follow these easy steps to create an ideal environment for your mushrooms to thrive naturally and sustainably.

Why Grow Mushrooms on Logs?

Growing mushrooms on logs offers a sustainable and rewarding way to cultivate mushrooms over the long term. This method utilizes hardwood logs inoculated with plug spawn—small wooden dowels infused with mushroom mycelium—that gradually colonize the log. Once fully colonized, the log becomes a natural substrate for the mushrooms, producing reliable harvests year after year. This approach mimics the fungi's natural growth environment, requiring minimal maintenance while providing consistent yields and a connection to nature's cycles.

How Are Mushrooms Grown on Logs?

Growing mushrooms on logs begins with the process of inoculation, where plug spawn is introduced into freshly cut hardwood logs. The plugs are inserted into drilled holes and sealed with wax to protect the mycelium and encourage colonization. Over time, the mycelium spreads through the log, feeding on the wood and preparing to produce mushrooms. By following a simple step-by-step process, you can create a thriving log that will provide mushrooms for years to come. In the guide below, we'll walk you through everything you need to know to get started.

GETTING STARTED

EQUIPMENT CHECKLIST

RMS LOG KIT

- ✓ **PLUG SPAWN** (choose your mushroom species)
- ✓ **5/16-INCH DRILL BIT**
- ✓ **WAX** (Soy or paraffin wax)
- ✓ **APPLICATOR FOR WAX** (or old paint brush)

ALSO NEED

- ✓ **FRESHLY CUT HARDWOOD LOGS** (oak, maple, or other hardwood species — see appendix)
- ✓ **DRILL**
- ✓ **HAMMER OR MALLET**
- ✓ **HEAT SOURCE** (to melt wax — hotplate or camp stove)



WHAT ARE MUSHROOM PLUGS AND HOW ARE THEY STORED?

Mushroom plugs are small wooden dowels coated with healthy white mycelium, cultivated in sterile conditions to prevent mold. Store them in a cool, dark place, such as a refrigerator, and keep them sealed to maintain viability for up to six months.



IS IT SUPPOSED TO LOOK LIKE THAT?

In your bag of plug spawn, you should observe a combination of small wooden dowels and bits of grain, both covered in white mycelial growth. This growth, which may appear fluffy or dense and fill the grooves, and may also show thread-like or branching growth, is healthy mycelium—the vegetative structure of the fungus.

MOLD & OTHER CONTAMINANTS

Key indicators of contamination include visible foreign molds, which can appear in a range of colors such as green, black, or orange.

Bacterial contamination is often indicated by a foul smell when inspecting the filter on the bag. If you notice signs of mold or a foul odor, reach out to your supplier about replacement plugs.

STEP 1: SELECTING LOGS

Choose fresh hardwood logs, ideally 3-8 inches in diameter, and 3-4 feet long. The logs should be cut from a healthy, live tree no more than six weeks before inoculation. Avoid logs with visible signs of decay or rot, or that are already growing wild mushrooms. *See appendix for appropriate tree species.*

Healthy, living trees can be cut at nearly any time, but the best window is late winter to early spring before bud swell and fall after one-third of the leaves have changed color.

After cutting, allow logs to cure for at least two weeks before inoculation to let antifungal compounds subside.

Logs with lichen or moss on them are okay to use, but should be cleaned with a stiff brush to remove prior to inoculation. Take care not to damage the bark on the log.



WHERE DO I GET LOGS?

If you don't own hardwood trees in need of maintenance, there are plenty of sources for logs. Most are happy to give logs away to avoid disposal fees. Be clear about the size and species you need (see appendix). Be sure to ask if they are willing to help cut logs to size. If not, equipment rental stores have chainsaws.

LOCAL TREE SERVICES, especially after storms, often have logs and will know the species and freshness. They might be glad to avoid disposal costs.

FRIENDS & NEIGHBORS Use social media, Nextdoor, or emails to ask if anyone has downed trees or plans tree maintenance.

LOCAL PARKS AND RURAL

CEMETERIES have scheduled maintenance of their trees. They're literally paid to work with the public, and will probably have fun hearing about mushroom growing.

MUNICIPAL WASTE SERVICES have a pipeline for recycling logs into mulch, but may not guarantee species or freshness.

ONLINE MARKETPLACES If all else fails, check Facebook Marketplace or Craigslist for free firewood or logs. If not, post your own "logs wanted" ad specifying species, size, and freshness.

STEP 2: PREPARING YOUR WORK SPACE

Before you begin, it's important to set up a clean and organized workspace. You'll want everything ready to go to ensure the process runs smoothly. Set up your heat source a safe distance from the surface you'll be drilling your logs and hammering plugs, and make sure there's a clear path to where you'll be stacking your finished logs.

MELT YOUR WAX:

Slowly heat soy or paraffin wax in a small pot or double boiler until fully melted. **WARNING:** Don't leave your dauber or brush in the wax while it's being heated.



STEP 3: DRILLING HOLES

SELECT AND ADJUST THE DRILL BIT:

Choose a drill bit that matches the diameter of the plug spawn. The plug spawn in our kits measures 5/16" x 1". The included drill bit is 8.5 mm in diameter, providing a snug fit for easy inoculation.

Use a stop collar or mark the drill bit with masking tape at just past the 1" mark for a visual reference on depth while drilling.

DRILL HOLES IN THE LOG:

Drill holes slightly more than 1 inch deep into the log.

Space holes 4-6 inches apart in a diamond pattern around the log.

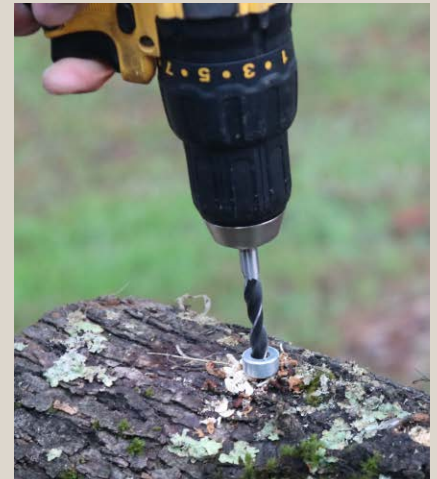
Stagger the holes along the length of the log to promote even colonization.

ENSURE COVERAGE:

Check that the holes are evenly spaced and cover as much of the log's surface as possible to maximize colonization area.

Drill each hole slightly deeper than the length of the plug spawn to provide the best placement and growth conditions.

Accurately drilled and spaced holes create the ideal environment for mushroom growth and set the stage for a productive inoculation process.



STEP 4: INSERTING PLUG SPAWN

Once your holes are drilled, it's time to introduce the plug spawn.

BREAK UP SPAWN:

Start by opening your bag of plug spawn and breaking up the individual plugs so they are ready for inoculation.



INOCULATE LOGS:

Insert a plug into each hole. Hammer the plug into the log until it's flush with the surface.



TIP: It can save time to partially insert plugs into several rows at a time, then hammer them flush in one go.

STEP 5: SEALING INOCULATION SITES

Sealing the inoculation sites is a critical step to protect the mycelium during colonization. Applying melted wax over the holes helps retain moisture, prevent contamination, and keep pests from interfering.

MELT THE WAX

Use a hot plate or microwave to melt your wax in a microwave-safe container. Do not put the wool dauber in the microwave! Be careful not to burn the wax, only heat enough to melt it into liquid form.

APPLY THE WAX

Using a brush or applicator, carefully cover each hole where you placed the plug spawn with melted wax. Make sure the wax fully seals the hole.

DOUBLE-CHECK COVERAGE

Ensure that all inoculated sites are thoroughly covered with wax, and that wax has been allowed to harden fully, in order to prevent contamination and support healthy colonization.



STEP 6: STACKING AND PLACEMENT

Once your logs are inoculated and sealed, proper stacking and placement are essential for successful colonization. The right environment will support mycelium growth and protect the logs from drying out or becoming waterlogged.



Choosing the Right Location

Shade is crucial: Select a location outdoors that is naturally shaded, such as under a tree canopy or on the north side of a building. Avoid direct sunlight, which can dry out the logs and hinder colonization.

Cool and humid environment: Choose a spot that stays cool and maintains consistent humidity. Areas prone to extreme temperature fluctuations or strong winds should be avoided.

Avoid waterlogged areas: Stay clear of locations prone to flooding, as excessive moisture can lead to rot and contamination.



Stacking Methods

CRIB-STYLE STACK: Arrange the logs in a criss-cross or “crib” pattern. This stacking method promotes excellent airflow around each log and prevents moisture buildup, which can lead to mold growth.

Stacking for colonization can be more compact. As fruiting time approaches, any tightly spaced stacks should be changed to a spaced-out lincoln log style, or arranged leaning or vertical.

LEANING METHOD: Alternatively, lean the logs against a stable surface like a fence, tree, or wall. Ensure they are spaced apart enough to allow air circulation while remaining stable and secure.

GROUND CONTACT: Minimize direct ground contact by placing the logs on a layer of bricks, stones, or wooden pallets. This prevents moisture wicking and reduces pest issues.

Monitoring Placement:

Regularly check your logs to ensure they're not drying out. If you live in a particularly dry climate, consider misting the area or using burlap or a tarp to retain humidity. Just ensure airflow is not obstructed.

STEP 7: COLONIZATION AND FRUITING

With your logs stacked and placed correctly, the mycelium will begin to colonize the wood. This is a gradual process that requires time, consistent conditions, and some basic care to ensure success. Once fully colonized, your logs will reward you with fresh mushrooms during favorable seasons.

The Colonization Process:

TIMELINE: Mycelium colonization takes about 6-12 months, depending on the mushroom species and environmental factors. Faster-growing species like oyster mushrooms may colonize within 6 months, while slower species like shiitake could take up to a year or more.

HEALTHY SIGNS: During colonization, you may observe white, thread-like mycelium spreading from the inoculation sites. This indicates that the mycelium is actively growing and integrating into the wood.

Seasonal Fruiting:

TIMING: Mushrooms naturally fruit during optimal weather conditions, typically in spring and fall. These seasons offer the right combination of temperatures and humidity for mushroom development.

ENVIRONMENTAL TRIGGERS: Cooler temperatures and increased moisture often signal the start of fruiting. Logs that are fully colonized will begin to produce mushrooms when conditions are right.

Log Care During Colonization:

MAINTAIN MOISTURE: To ensure successful colonization, logs must stay moist. Water your logs during extended dry periods, especially in arid climates. Use a hose or sprinkler to lightly mist the logs without oversaturating them.

AIRFLOW: Good airflow around the logs prevents mold growth and supports healthy mycelium development. Logs stacked in a criss-cross pattern or leaned securely against a surface allow air circulation while maintaining stable humidity.

GROUND CONTACT: Avoid logs resting directly on the ground. Place them on pallets, stones, or bricks to reduce the risk of contamination from pests or excessive moisture.

Encouraging Fruiting:

After colonization is complete, you can stimulate fruiting by soaking the logs in cold water for 12-24 hours. This mimics the natural rainfall conditions that trigger mushrooms to fruit.

Final Tips for Success:

INSPECT REGULARLY: Check your logs for pests, signs of rot, or mold. Address any issues by adjusting the stacking method, improving airflow, or reapplying wax to exposed areas.

PATIENCE PAYS OFF: Mushroom cultivation on logs is a slow process, but once colonized, the logs can produce mushrooms for several years with minimal maintenance.

FRUITING: Once fruiting has been induced, it can take anywhere from a few days to a full month for mushrooms to form and fruit to maturity. Be sure to check daily on your mushrooms and only attempt induce fruiting once every 30 days if initial soak is not successful.

By carefully maintaining your logs and providing optimal conditions, you'll set the stage for a productive and rewarding mushroom-growing journey!



APPENDIX: WOOD SPECIES CHARTS

Hardwood Tree Species Suitable for Mushroom Cultivation

SUITABLE SPECIES		NOT SUITABLE
ALDER <i>Alnus spp.</i>	HICKORY <i>Carya spp.</i>	BLACK LOCUST <i>Robinia pseudoacacia</i>
APPLE <i>Malus domestica</i>	HORNBEAM <i>Carpinus spp.</i>	CEDAR <i>Cedrus spp.</i>
ASH <i>Fraxinus spp.</i>	IRONWOOD/HOPHORNBEAM <i>Ostrya virginiana</i>	CYPRESS <i>Cupressus spp.</i>
ASPEN <i>Populus tremuloides</i>	MAGNOLIA <i>Magnolia spp.</i>	FIR <i>Abies spp.</i>
BASSWOOD <i>Tilia americana</i>	MAPLE <i>Acer spp.</i>	HEMLOCK <i>Tsuga spp.</i>
BEECH <i>Fagus spp.</i>	MULBERRY <i>Morus spp.</i>	JUNIPER <i>Juniperus spp.</i>
BIRCH <i>Betula spp.</i>	OAK <i>Quercus spp.</i>	LARCH <i>Larix spp.</i>
BOX ELDER <i>Acer negundo</i>	PEAR <i>Pyrus spp.</i>	PINE <i>Pinus spp.</i>
BUCKEYE <i>Aesculus spp.</i>	PECAN <i>Carya illinoensis</i>	REDWOOD <i>Sequoia spp.</i>
BUCKTHORN <i>Rhamnus spp.</i>	PERSIMMON <i>Diospyros spp.</i>	SPRUCE <i>Picea spp.</i>
CHERRY <i>Prunus spp.</i>	SYCAMORE <i>Platanus spp.</i>	
CHESTNUT <i>Castanea spp.</i>	TREE OF HEAVEN <i>Ailanthus altissima</i>	
CHINESE PRIVET <i>Ligustrum sinense</i>	WALNUT <i>Juglans spp.</i>	
COTTONWOOD <i>Populus spp.</i>	WILLOW <i>Salix spp.</i>	
ELM <i>Ulmus spp.</i>	YELLOW POPLAR (TULIP TREE) <i>Liriodendron tulipifera</i>	
EUCALYPTUS <i>Eucalyptus spp.</i>		

NOTES

- Some tree species may be more suitable for certain species of mushrooms. **Oak, Beech, Apple, and Maple** tend to be great for almost anything.
- **Low-density woods** colonize quicker but tend to last fewer years. **Oysters** are often a good candidate for low-density woods like Alder or Cotton Wood.
- **High-density woods** like Oak colonize slower but may last more seasons. They are perfect for **Shiitake**.

SUITABLE TREE SPECIES

	Shiitake	Oyster	Lion's Mane
IDEAL	ALDER, BEECH, HARD MAPLE, IRONWOOD/HOPHORNBEAM, HORNBEAM, OAK, SWEETGUM	ASPEN, COTTONWOOD, TULIPTREE, WILLOW	BEECH, HORNBEAM, MAPLE
SUITABLE	BASSWOOD, BIRCH, CHESTNUT, EUCALYPTUS, HICKORY, MAPLE, PECAN, SYCAMORE, TULIP TREE, WILLOW	ALDER, BASSWOOD, BEECH, BIRCH, BOX ELDER, BUCKEYE, ELM, MAPLE, IRONWOOD/HOPHORNBEAM, MULBERRY, PEAR, SWEETGUM, SYCAMORE	ALDER, ASPEN, BIRCH, BLACK WALNUT, BOX ELDER, CHERRY, CHESTNUT, COTTONWOOD, ELM, MULBERRY, OAK, MAPLE (SOFT), SWEETGUM
NOT SUITABLE	ASH, ASPEN, CHERRY, COTTONWOOD, ELM, PEAR	ASH, HEMLOCK, OAK	HEMLOCK, PINE