

# Growing Mushrooms in Logs & Stumps With Plug Spawn

- Easy and fun
- Can be used in permaculture settings
- Produce your own food
- Mushrooms grow seasonally for many years



Shiitake logs

# Plug Spawn Storage

---

- Plug spawn is good for up to 6 months. If you are using it within 2 weeks, keep it at room temperature, out of direct sunlight. If you will be storing it for longer than 2 weeks, keep it in the refrigerator until you are ready to use it.
- Make sure the plug spawn bag is not cut off from oxygen (the refrigerator is fine). There are pinholes in the bag that allow the mycelium to absorb oxygen, which it needs to stay alive.
- It is best not to open the bag until you are ready to use it.
- The mycelium will have a cottony-look to it. The color varies depending on the species of mushroom and can be orange, white, yellow, brown, or pink. It will change color as it ages but will still be viable if used within 6 months.

## Tools Needed

---

- Drill
- Drill bit for drilling holes, measuring 8mm or 5/16"
- Hammer (any kind will work).
- 1 LB Wax for sealing holes and the ends of the logs. Wax is not mandatory, but it is beneficial. It helps keep moisture in the log and keeps contaminants from growing in the wood. You can use cheese wax, beeswax, soy wax, paraffin wax...
- A wool dauber or paintbrush for applying wax. (I use a 1 ½" natural bristle paint brush).
- A pot and a heat source for melting the wax. A propane camp stove or electric burner works well. It is difficult to clean wax, a cheap pot or crockpot works great!
- Freshly cut logs or stumps. Specific details for selecting the correct type of log are listed in the next section.
- Plugs: 100 plugs inoculates about 9' of logs or 2 stumps with a 10" diameter.



# Log Selection

---

## AGE

- Logs and stumps should be freshly cut, free of disease and with most of the bark still intact.
- After the wood has been cut, let it rest for at least 1 week before inoculating with plug spawn. Living trees produce a natural fungicide and after they are cut it dissipates within 1 week.
- The oldest the wood should be is 5 months old.

## SIZE

- Logs should be between 4" to 12" in diameter and be a minimum of 2' in length up to as long in length as you can handle.
- Stumps should be between 6"-14" in diameter.
- Smaller diameter logs and stumps will colonize and fruit sooner but will not last as many years as a larger diameter.

## SPECIES OF WOOD

- The species of wood you use depends on which mushroom you are growing. Mushrooms varieties are particular to specific wood species. Below is a compatibility chart. If you are using a mushroom variety or tree species that is not listed in the chart, please contact our farm and we will help guide you.

## TIPS

- If you are having trouble finding a freshly cut log, ask an arborist or firewood seller.
- Plug spawn is easy to come by, we continually make it throughout the year. Logs and stumps can be harder to find so have your wood sourced before buying your plug spawn.

## Mushroom Plug Spawn Compatibility Chart

Tree Species

	Blue Oyster	Chestnut	Chicken Of the Woods	Lion's Mane	Maitake	Reishi	Shiitake	Turkey Tail	White Elm
Alder	X	X		X		X	X	X	X
Ash	X	X					X	X	X
Beech	X	X					X	X	X
Black Locust								X	
Black Walnut								X	
Birch		X	X	X			X	X	
Cottonwood		X		X				X	
Eucalyptus							X	X	
Elm		X		X		X		X	
Hickory		X					X	X	
Maple	X	X		X		X	X	X	X
Oak	X	X	X	X	X	X	X	X	X
Poplar	X							X	X
Softwoods: Pine/Hemlock/Fir/ Douglas Fir/Spruce/ Piñon			X					X	

## When To Inoculate

- In warm and temperate climates logs and stumps be can inoculated any time throughout the year.
- In colder climates, with an average winter temperature below 10°F, the best time of year to inoculate logs and stumps is in the Spring, after the last hard frost, up until early Fall.
- If you live in a colder climate and plan to inoculate between Fall and Spring, store your logs in a warmer place (such as a shed, garage, barn...) until the last hard frost has passed. Freshly inoculated outdoor logs and stumps should be insulated to protect the mushroom mycelium from the cold. Insulate them by covering them with a thick layer of straw, burlap, shade cloth, or any other water-permeable covering.

# How To Inoculate

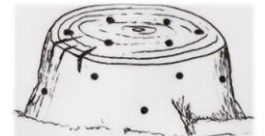
---

## STUMPS

1. Use a 5/16" or 8mm drill bit to drill 1 ½" deep holes (evenly spaced every 4") in the top, sides, and exposed roots of the stump.
2. Pound a mushroom plug into each hole until it is flush with the bark.
3. Melt wax in a pot. An electric frying pan works well. If inoculating away from electricity a camp stove set on its lowest setting works great. Brush melted wax over each hole and anywhere the bark has been removed. Make sure that the wax is hot when you apply it, otherwise the wax won't create a tight seal and can easily fall off.



Freshly cut stump ready for inoculating



Small stump with holes drilled evenly around it

## LOGS

1. Use a 5/16" or 8mm drill bit to drill 1 ½" deep holes down the length of the log, spacing the holes 4" apart. Start the next row 3" away from the first row and offset the holes so that they form a "diamond" pattern. Continue making rows until the entire log is covered in holes.
2. Pound a mushroom plug into each hole until it is flush with the bark.
3. Melt wax in a pot. An electric frying pan works well. If inoculating away from electricity a camp stove set on its lowest setting works great. Brush melted wax over each hole and anywhere the bark has been removed (ends of the log, where a branch was lopped off, gash in the bark...). Make sure that the wax is hot when you apply it, otherwise the wax won't create a tight seal and can easily fall off.



Diamond pattern



Drilling holes



Pounding in the plug spawn



Applying melted wax

# Where To Put Your Inoculated Logs

---

- An ideal place is a shady location that is protected from wind. In temperate climates, logs and stumps in shady areas do not need to be watered. In drier locations water for about 2 hours 2 times a week with an overhead sprinkler.
- Logs and stumps can also be in direct sunlight if they are watered during dry seasons. If in direct sun water for about 2 hours 2 times a week with an overhead sprinkler.
- Keep in mind it is important to put them in a location that you frequently visit so you will notice when mushrooms start growing. There are many ways to set your logs up. A permaculture style can be functional and aesthetically pleasing. Here are a few ideas:
  - Crib-stack log cabin style.
  - Lean them up against something.
  - Garden bed borders
  - Bury the logs and use them as steppingstones.
  - A bridge
  - Bury ¼ of the log in the ground so it is standing upright and use as trellising, a bird perch, a bench...



crib-stacked log cabin style



leaning



garden bed borders



bench



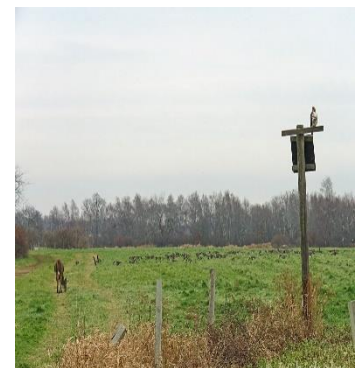
steppingstones



bridge



trellising



bird perch

# What To Expect

---

- Logs and stumps generally start producing mushrooms within 6 months to 2 years. The time frame depends on the species of mushrooms used and growing conditions.
- Mushrooms will fruit seasonally. Each mushroom has a preferred season to grow. They will continue to grow until the log or stump has decayed. Logs and stumps typically produce mushrooms for 5-10 years depending on the diameter and species of wood. Larger diameters and harder wood varieties last longer.
- Within a few months pieces of wax will start to fall off. This is normal and fine.
- The yield your logs or stumps will produce depends on many factors.
- Logs inoculated with different varieties of mushrooms can be stacked near each other, but you can only use 1 variety of mushroom plug spawn in a log.
- Animals have not posed a problem on our farm. If this is a concern, lightly cover the logs or stumps with chicken wire.



Lion's mane



Chicken-of-the-woods



Oyster

THE  
Mushroomery  
Certified Organic  
Gourmet, Medicinal &  
Ethically Wild-Crafted Mushrooms



LEBANON, OREGON  
THEMUSHROOMERY@GMAIL.COM  
WWW.THEMUSHROOMERY.NET

