

Blue Sky Fungi Plug Spawn

For cultivation of mushrooms on logs and stumps

Special Note: Do not open your plug spawn bag until you have read through **ALL** these instructions and prepared all the necessary materials. Once the bag has been opened, use the Plug Spawn immediately. This is a long-term project and may take several years to produce mushrooms.

Before you begin, make sure that the mycelium (the white and fuzzy growth on the wood plugs) has recovered from its trip to your home. Place the plug spawn bag in a dark place and don't mix the contents of the bag around. Allow the mycelium to rest for a few days undisturbed before you inoculate the wood you have chosen for this project. Plug spawn can be stored at room temperature for up to 1 month. If storing for longer (maximum 6 months), please place it in the refrigerator. If stored in the refrigerator, remove the plugs 24 hours before plugging to allow the organism to acclimate to room temperature.

What kind of wood should you use?

Most mushroom species grow on hardwood from deciduous trees. Preferred hardwoods include Oak, Maple, Alder, Elm, Chestnut, Birch, and Beech. Thick-barked hardwoods work the best (Oak). Logs with thin bark or softer wood (Poplar, Cottonwood, Willow, etc.) will break down faster and not produce mushrooms for as long.

What are the best conditions for the wood?

Fresh cut wood is essential to success. Inoculate logs or stumps that have been cut within 1 month to allow the mushroom mycelium you are trying to grow the best chance. The wood should be clean, healthy and free from any other fungi because a competing organism can easily take over the wood before your mycelium can. The logs should come from a healthy, live tree and the bark should be intact. Moss or lichens on the wood should not interfere with your mushrooms, but you should brush off the logs prior to drilling holes. Wood cut and sitting for longer than 6 months is NOT recommended, as competitor organisms will most likely be present in the wood already. The wood should also be stored off the ground and isolated from any soil-borne fungi.

What size of log or stump should you use?

The ideal log size is 2'-4' in length and 4"- 8" in diameter. The larger the diameter the longer it will take for the mycelium to colonize the wood and fruit mushrooms. For stump cultivation, you should girdle the base (removing the bark from the bottom 2 inches of the stump) to prevent the stump from growing after plugging. Also, make sure the stump is in a shaded location or provide shade. Mushrooms don't really like to grow in sunny and dry conditions.

What you will need:

- ¼ -inch drill bit
- Drill
- Rubber mallet or hammer
- Beeswax, soy-based wax, cheese wax, or any food grade wax (for sealing the holes on the logs/stumps)
- Small stove or electric hot-plate (to melt the wax)
- Metal container (for melting the wax in) like an old pot, coffee can, etc.
- Small paint brush (to spread the wax)

Let's plug some logs!

A note on temperature: Try to inoculate the logs and stumps when temperatures are consistently above freezing. If inoculating in winter, allow the logs to colonize for a minimum of 30 days in temperatures above 40 degrees F by storing them indoors or where temperatures are warmer. Then move them to their permanent location. Spring and fall are the best times to inoculate; try to avoid inoculating in deep winter or the hot summer.

Step 1 – Drill holes: Using the ¼ -inch drill bit and drill, drill holes about 1 ¼ to 1 ½ inches deep. Wrap a piece of tape around the drill bit 1 ¼ inch from the tip to help guide the depth. The holes should be about 4 inches apart and evenly spaced in a “diamond” or “checkerboard” pattern around the log. You should be able to put 45 or more holes per 3’- 4’ log. For stumps, the holes should be drilled along the circumference of the face of the stump in the area between the bark and the heartwood (which is called the sapwood).

Step 2 – Insert the plug spawn: Once your holes are drilled, open the bag of plug spawn. Make sure your hands are clean or wear new gloves! Put a dowel plug into each hole and pound the plug into the hole with the mallet or hammer. The top of the plug should be even with the top of the bark. Repeat until all plugs have been used and don’t leave any empty holes (fill them with wax if you run out of plugs).

Step 3 – Seal the plug holes: Melt the wax in your metal container on the stove or hot-plate. Use the small brush to apply wax over the plugs in the holes in the logs or stump. This will help retain the moisture in the logs during colonization. You can use mud if you don’t have any wax. You need just enough wax to cover the plug and make a good seal. Cover at least one cut end of the log to prevent moisture loss. You can cover both cut ends if you live in a very dry environment. For stumps, cover the cut stump face. Do not cover the whole log or stump with wax or mud, as you still want to allow moisture to enter the log from rain or watering.

Caring for your Mushroom Logs

The logs should be placed in a shady area under dense forest canopy or under a shade cloth or burlap sacks; do not use plastic as this will encourage mold and bacteria growth. The logs should not be in contact with the soil to prevent competitor fungi from invading the logs. You can criss-cross the logs to stack them.

The logs need to maintain good moisture content for the healthy growth of the mushroom mycelium. This is achieved naturally with regular rainfall. In times of light rain or during the dry summer months, it

will be necessary to water the logs thoroughly once or twice a week for a few minutes each time. The logs or stumps will require 6 months to 2 years to fully colonize with mycelium. Again, the larger the diameter of the log, the longer the colonization time will take.

Initiating the Logs

After about 9 to 12 months, the mushroom mycelium will have colonized a significant portion of the wood. You can observe signs of the colonization by visually inspecting the cut faces of the logs for “mottling” patterns covering the cut face. The mottling looks like irregular, blotchy colors that are generally white, brown, and black. At least 65% of the face should be mottled when the logs or stumps are ready to fruit. The longer you allow your logs to colonize the better your chances are of producing mushrooms.

When sufficient colonization has occurred, mushrooms will fruit when the proper outdoor temperatures for the species are present (Refer to your species information page for details on fruiting temperature ranges). If you incubate the logs in a naturally wet area and the proper temperature is present, the logs will begin to fruit mushrooms on their own. Once the logs look ready to fruit, submerge the logs in a tank or tub of water for 12-24 hours (do not use chlorinated tap water for this; if your only option is chlorinated tap water, fill the water tank and let it sit for 24 hours to dissipate some of the chlorine out of the water). If small mushroom primordia (baby mushrooms) are present on the logs, do not submerge your logs in water, instead treat them as if they have already been initiated.

After soaking, your logs can be partially buried for fruiting. Dig a hole in a shaded area and line the hole with sand or small gravel. Logs buried directly in soil may experience problems with rotting quickly or competition with other microorganisms. Logs buried horizontally should be buried so the top third of the log is above the ground surface. Logs buried vertically should be buried so the bottom 1/3 to 2/3 are under the ground surface. You will need to water the logs each day if you are not receiving regular rainfall, or if you live in a dry, arid environment.

Primordia should start forming within 2 weeks of initiation. The mushroom primordia will form all over the log. Each mushroom species will mature at different rates. Refer to your species information page for details. Harvest your mushrooms when they are ready and enjoy.

After you have harvested your first flush of mushrooms, the logs will enter a dormancy period. If the logs do not fruit again after the first flush, let them sit for 2-3 weeks before re-initiating them. If the outdoor temperature has moved away from the desired fruiting range, wait until the weather is right before attempting to fruit the mushrooms again. Colonized logs can produce mushrooms in favorable conditions for several years. Enjoy!

*****DISCLAIMERS*****

The first time you consume any variety of mushrooms new to you, it is advisable and best to only try a small portion and wait 24-48 hours. If no undesirable effects occur, you may safely assume that you do not have an allergy to this mushroom. ALL mushrooms should be cooked prior to eating.

It is up to the consumer to safely test their tolerance of any fungi for health and safety reasons.

Always positively identify the mushroom prior to consumption. Just because it is growing on your log, does not mean it is the mushroom you intended to grow.

Blue Sky Fungi is not responsible for any adverse reactions that may come from using our products.

Due to the varying conditions of using mushroom spawn plugs, we cannot guarantee your success.

We can guarantee that we will do our very best to help you troubleshoot and problems and answer any questions as knowledgeably as possible. Please contact us via email with any questions, comments or concerns at BlueSkyFungi@gmail.com

Mushroom Species Information:

Shiitake (*Lentinula edodes*): Favored wood – Many hardwoods, Oak, Alder, Maple, Sweetgum, Chestnut, Cherry, Birch. Preferred orientation – Vertical
Temperature Range – 55 to 75 °F Season – Spring and Fall
Length of time for mushroom growth – 1 to 2 weeks

Lion's Mane (*Hericium erinaceus*): Favored wood – Oak, Maple, Beech, Black Walnut, Elm, Sweet Gum. Preferred orientation – Vertical, partially buried after initiation.
Temperature Range – 60 to 70 °F Season – Spring and Fall
Length of time for mushroom growth – 1 to 2 weeks

Chestnut or Cinnamon Cap (*Pholiota adiposa*): Favored wood – Many hardwoods, Oak, Maple, Beech, Birch, Poplar, Willow. Preferred orientation – Horizontal, partially buried after initiation.
Temperature Range – 50 to 65 °F Season – Early Spring and Fall
Length of time for mushroom growth – 1 to 2 weeks

Oyster mushroom (*Pleurotus ostreatus*): Favored wood – Many hardwoods, Oak, Maple, Alder, Elm, Ash, Sweetgum, Chestnut, Beech, Birch, Cottonwood, Poplar, Willow, Mulberry, Aspen
Preferred orientation – Horizontal or Vertical
Temperature Range – 50 to 80 °F Season – Spring and Fall
Length of time for mushroom growth – 1 week

Turkey Tail (*Trametes versicolor*): Favored wood – Many hardwoods, Oak, Maple, Alder, Ash, Poplar, Elm, Chestnut, Birch, many fruit woods, Douglas Fir. Preferred orientation – Vertical or Horizontal
Temperature Range – 65 to 75 °F Season – Spring and Fall
Length of time for mushroom growth – 45 to 70 days