

Growing Shiitakes on Logs



Shiitake mushrooms are rich in vitamins and minerals, supporting heart health and immunity. Now you can grow your own! Here are the steps to follow:

1. Choose your log.

- The wood should be cut in late winter to early spring, before buds are forming. This is when the logs contain the most moisture.
- The tree you cut from should be alive—fully alive.
- The bark should have minimal damage and be free of rot or any other visible fungi.
- The log can be as long as is manageable for you but should have a diameter of 3–6 inches.
- The best type of tree is oak. Hardwoods last longer and will produce more flushes and ultimately more mushrooms.

Spawn

Vegetative mycelium (fungal strands, not spores), cultured on dowel plugs under sterile conditions, and used to inoculate logs.

Mycelium

The vegetative part of a fungus, consisting of a network of white filaments (hyphae).

Fruiting body

Mushrooms we eat!

Best species:

Oak (*Quercus*): Cornell University research indicates that red and white oak perform similarly.

Sugar maple (*Acer saccharum*): Shiitakes taste wonderful on this excellent producer.

Very good:

American hophornbeam / ironwood (*Ostrya virginiana*)

American hornbeam / musclewood (*Carpinus caroliniana*)

American beech (*Fagus grandifolia*)

Not good:

White ash: Generally sluggish and not very productive.

Elm: Not very productive.

Soft hardwoods: Aspens and similar species are not recommended.

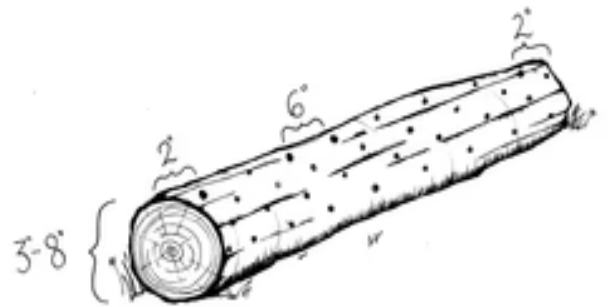
Evergreens: Don't use coniferous evergreens (hemlock, pine, etc.).

Fruit trees: Apple, cherry, and other fruit trees aren't recommended.

2. Drill holes in the log.

You'll drill holes for the shiitake plugs, which are 5/16 inch in diameter and 1 inch deep.

Start 2 inches from the end of the log and drill holes 6 inches apart in rows along the length of the log. Space rows 3 inches apart. Measure the diameter of the log, and plan to have as many rows of drill holes as there are inches of diameter; for example, a log with a 6-inch diameter needs 6 rows. Stagger the holes in a diamond pattern to ensure rapid growth of the fungus throughout the log.



If the log has areas where bark was damaged or branches were cut, drill holes in these areas as well. After you inoculate the log, you'll seal the damaged or bare areas with wax, increasing chances for a thorough and successful spawn run.

3. Inoculate the log.

Hammer a plug into each hole until the plug is flush with the bark.

4. Wax the log.

Completely seal each hole with food-grade wax. Then seal the ends of the log as well. The wax helps lock in moisture so the spawn does not dry out. The wax also reduces potential contamination by competing fungi species.

5. Store the log and water it.

- Store your log in a shady area, under an evergreen or on the north side of a building.
- Don't place the log directly on the ground, but keep it low, where the humidity is high. Use a few bricks or 2x4s to lift the log slightly off the ground. Competing spores will enter the log if it's touching the ground.
- Water the log weekly if it hasn't rained much.

6. Force consistent production.

- About 14-16 months after inoculation, soak the log in a bucket of water, fully submerged, for about 24 hours. Submerging the log for more than 24 hours can kill the mycelium, so be sure that you don't leave the log in too long.
- Place the log in a shady area again, upright this time. In 3-5 days you'll see the log pinning. In a few more days, you'll have harvestable mushrooms.
- Let the log rest for 7 weeks. Then start the soaking process again. You should get 3-4 flushes each year.

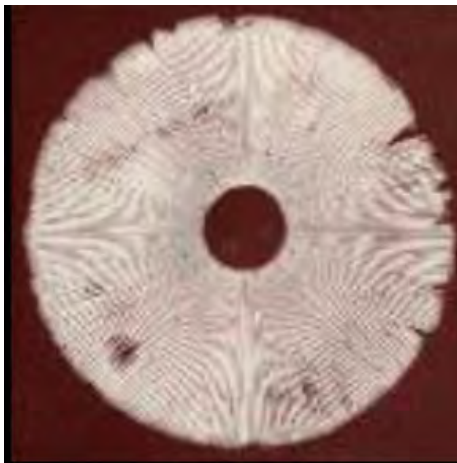
7. Make a spore print before eating for safety.

Spore printing, along with other identification methods, is an excellent way to distinguish shiitake from *Galerina marginata*, *which is poisonous*. *Galerina* mushrooms grow from wild logs in the forest. The fruit bodies of this fungus have a brown to yellow-brown cap, with brownish gills, and produce a rusty spore print. Again, this potential look-alike is a poisonous mushroom.

Gill color is not a reliable way to distinguish the two because young *Galerina* gills can look pale; they darken with age. And although *Galerinas* usually have a ring (annulus) around the stem, it may degrade as the mushroom ages. The ring is a remnant of a membrane that covers the gills of the young *Galerina*; it runs between the edge of the cap and the stem. As a young mushroom opens, the membrane tears at the cap edge and becomes the ring. Shiitakes never have a ring, no matter their age.

To reliably distinguish a shiitake from a *Galerina*, make a spore print:

- Cut off the stem and place the cap, gills down, on white paper.
- Cover the cap with a bowl to keep it moist.
- Wait for some hours to overnight. A shiitake print will always be white. *Galerinas* always give a brown spore print.



Shiitake mushroom spore print

Image by Ken Mudge, Cornell University



Poisonous Galerina mushroom spore print

Printed with permission by owner Stephen L. Peele, curator of the Florida Mycology Research Center

Always make a spore print!

**If for any reason you're unsure about the identification,
consult a mycologist or other expert.**