

# Growing Shiitake Mushrooms on Logs

## Start with...

Freshly cut Hardwood logs

- Oak (*Quercus spp*), Sugar Maple (*Acer saccharum*), Beech (*Fagus grandifolia*), Musclewood/American Hornbeam (*Carpinus caroliniana*), Hop Hornbeam/Ironwood (*Ostrya virginiana*).
- Cut within a few weeks of using (can keep longer through winter months if stacked or covered in snow to avoid drying out).

Sawdust or Peg Spawn

- Use within 6 months, sooner is better.
- Store in a cool location (fridge is best).
- Do not allow to freeze or dry out.
- Do not open bag until ready to use.

Foodgrade Wax

- Cheesewax or paraffin wax (may not be acceptable for certified organic production)
- Beeswax is good but can attract animals, may crack at low temperatures
- A few drops of mineral oil can be added to the wax to increase flexibility

## To Inoculate...

1. Drill holes in log about 4-5" apart, in a diamond pattern
  - If using sawdust spawn with inoculation tool, holes should be 7/16" with stop.
  - Drill one row of holes per inch of diameter of the log.
2. Insert spawn
  - a. Place spawn you'll use that day in a bucket or other sturdy container, and break up clumps with clean hands. Tightly wrap any unused spawn.
  - b. Tamp tool two or three times into sawdust spawn to fill the open part of the brass tube completely.
  - c. Place tool over drilled hole and push down plunger. Check to ensure spawn is packed tightly to the surface of the log or just slightly below.
3. Cover with wax
  - Wax should be hot, close to smoking, or 300-400° F.
  - When applied, wax should go on clear. If translucent or white, the wax is too cool.
  - Take care to minimize risk of fire and burns.

## Care of Your Logs

- Logs should be kept in a shaded location to avoid drying out. Evergreen canopy is best.
- Shade cloth or other shade structures can be used, particularly in deciduous laying yards.
- If logs are kept inside, periodic “maintenance soaks” are recommended. Place log in water for an hour or two every few months.
- Shiitake require a 6-12 month “spawn run” for the fungus to colonize the log prior to producing fruit (typically a full growing season in the Northeast). Larger logs will take longer to colonize.
- Shiitake are cold hardy, but will only actively fruit during spring, summer, and fall.
- Logs need only be inoculated once, and will typically produce mushrooms for 3-5 years following initial spawn run.

## Fruiting Your Logs

- Shiitake logs will fruit mushrooms on their own if left outside, typically following large rains or fluctuating temperatures. Check periodically for “pins”.
- To initiate fruiting, soak logs for 12-24 hours (cold water is best) and then set logs in shaded location where harvesting mushrooms will be easy (leaning against a rail, low A-frame or in an open stacking pattern where each log can be reached without moving others).
- Mushrooms will be ready to harvest 7-10 days after soaking, depending on temperature, with small “pins” appearing within the first 3-4 days.
- Cut mushrooms from log when bottom of cap is slightly curled under (concave) or edge is pointing down. Mushrooms are edible at all stages of growth, but will keep best and taste best prior to spore dispersal and flattening of cap.
- Logs must rest for 7-8 weeks before being fruited again.
- Shadecloth or other coverings during fruiting can help reduce damage from rain and pests.
- Removal of duff, plant growth, and use of gravel or other barrier on the ground in fruiting area can help avoid slug damage.

## Storing Mushrooms

- If harvested when dry and caps slightly concave, shiitake should keep in the fridge for up to 2 weeks.
- Store fresh mushrooms in a paper bag or other breathable container.
- Shiitake can be dried using a food dehydrator or low temperature oven and stored in an airtight container for up to several years. Dehydration is complete when mushrooms are leathery and brittle, but have not turned brown.

## Resources:

- **Best Management Practices for Log-Based Shiitake Cultivation in the Northeastern United States**, *Cornell University Cooperative Extension and University of Vermont Cooperative Extension, SARE*, <https://blogs.cornell.edu/mushrooms/factsheets/>
- **Mushroom Cultivation @ Cornell Page**, Cornell Small Farms Program. <https://blogs.cornell.edu/mushrooms/>
- **The Basics of Hardwood-Log Shiitake Mushroom Production and Marketing**, Virginia Cooperative Extension Publication ANR-102P, *Gregory Frey, Extension Specialist, Forestry, Virginia State University*, [http://pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/ANR/ANR-102/ANR-102-pdf.pdf](http://pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ANR/ANR-102/ANR-102-pdf.pdf)
- **Forest Farming Resource Area**, Extension.org [http://articles.extension.org/forest\\_farming](http://articles.extension.org/forest_farming)



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