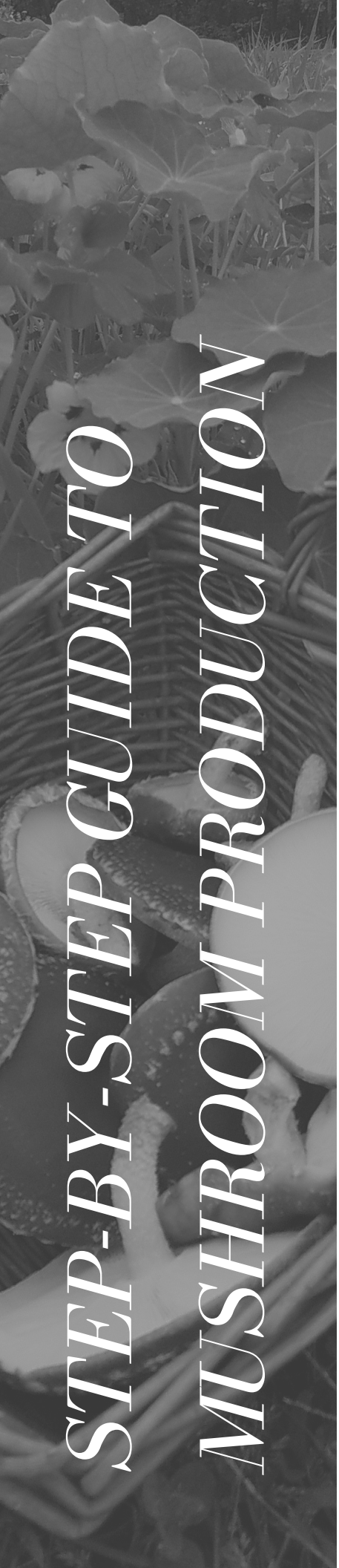


LOG PRODUCTION

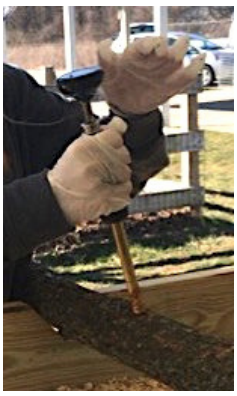
METHOD BY: TIM DORSEY, CUE FARM AT BUTLER UNIVERSITY

Summary

This document outlines basic steps for the production of mushrooms on felled tree logs. Indianapolis farms have successfully produced shiitake, oyster, and lion's mane on hardwood logs.

Materials**

hardwood logs
aluminum garden tags
angle grinder (or high speed drill)
angle grinder adapter (or drill bit & stop collar)
sawdust spawn (or plug spawn)
palm inoculation tool (or mallet)
wax daubers
cheese wax
countertop burner
old pot
shade cloth or natural shade
water

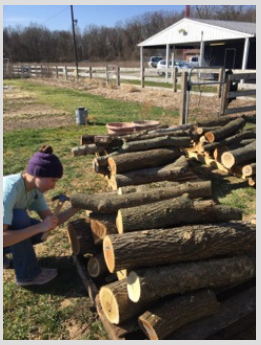


**Most materials can be purchased from Sharondale Mushroom Farm, Field and Forest Products, Inc., or other companies.

Note: Field and Forest Products, Inc. has a table outlining the best log species for growing particular varieties of mushrooms (see https://www.fieldforest.net/pdfs/Tree%20Species%20Chart.pdf)

Steps

1. **CUT OR ACQUIRE FRESHLY CUT BOLTS.** Cut or acquire freshly cut logs of appropriate hardwood species for the type of mushroom spawn you will cultivate (see "Note" above). Logs can be acquired at little to no cost from local tree trimmers, if hauled. The ideal time to cut is in winter through early spring—the tree should be dormant. If not inoculating for more than a couple of weeks after felling (only a viable option with winter-cut wood), logs should be stored in shade in a manner that maximizes humidity—raised off of, but close to the ground. Logs should be 3-8" (ideally 4-6") in diameter. Length of 3-4' is ideal from a logistical perspective. Ensure log length is compatible with inoculation table (and dunk tank), if using. Using aluminum garden tags, label each log with its species as well as the mushroom variety to be inoculated.



Steps (cont'd)

2. **DRILL HOLES.** Before drilling, melt cheese wax in old pot using an electric countertop burner. While wax is melting, drill holes into logs about 6" apart lengthwise and offsetting the next row about 2". Hole depth should be appropriate to the inoculation tool or plug-spawn size selected. Equipment suppliers offer appropriately matched drill bits as well as adapters to turn an inexpensive angle grinder—which has a much higher speed than a standard drill—into a log drilling tool (see materials). If inoculating a large quantity of logs, a custom table with v-notches to hold the logs in place may be useful (as shown in this section's bottom photo).

3. **INOCULATE LOGS.** Place sawdust or plug spawn in clean plastic cups. Inoculate logs by inserting sawdust spawn (with an inoculation hand-tool) or plug-type spawn (with a mallet) into drilled holes.

4. **SEAL THE INOCULATION SITES.** Use a wax dauber and melted cheese wax to seal all inoculation sites. Cheese wax is most desirable in terms of resistance to drying/cracking.

5. **INCUBATE THE INOCULATED BOLTS IN SHADE.** Incubate the inoculated logs in dense shade—80% shade cloth may be used if natural shade is not available. Before mushrooms fruit, white mycelium will run over the length of the log in the span of 6-18 months (or sometimes less!). Factors influencing time to fruiting include temperature ranges specific to the mushroom strain, the thickness of the log, and species of wood used.

6. **IRRIGATE IF NECESSARY.** The moisture level of logs needs to remain relatively high and occasional irrigation via sprinkler or dunking may be necessary during dry spells. Mushrooms may be force-fruited through submersion in relatively cold water for 12-24 hours, a practice which will require quite a bit more labor but can make marketing product more predictable.

7. **WATCH WEEKLY FOR FRUITING.** Mushrooms may flush on a given log multiple times per year naturally or can be forced into fruit as detailed above (#6). Logs may be viable for 3-6 years (or more) if appropriate conditions are maintained, again depending on the species of both mushroom and wood and thickness of the log.