

Figure 1. Inoculation sites can be made by drilling.

The spawn "run" or laying the logs

After inoculation, logs may be stacked in parallel layers ("ricks") or inclined against a railing for the spawn run or development (Figure 2). In Florida, a heavily-shaded area (at least 75% shade) exposed to rain and good air movement is best since these conditions protect the logs from direct sun and help reduce the likelihood of contaminating fungi. The heat of direct sunlight can kill the shiitake fungus during hot weather. Optimal conditions for the fungus to successfully colonize and become established in logs are 60°-80°F and 80-85% relative humidity.

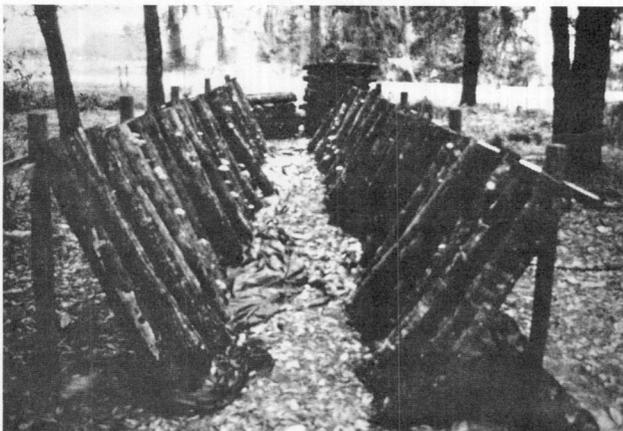


Figure 2. Inoculated logs are leaned against a railing or stacked in ricks.

Caring for the logs

The area where the logs are laid should have a convenient water source, since logs should be wetted in dry times during the spawn run. Wetting should generally not be done more than once or twice a month with a sprinkling of 2 to 8 hours duration. Approximately 70% moisture content is optimum for fungal growth. This may be monitored by periodically

checking the log moisture level (see the next section: monitoring log moisture content). Some strains of shiitake may colonize inoculated logs in 4 to 6 months while other strains take 18 months or longer. Complete colonization must take place before fruiting will occur. Check the progress of colonization several months after inoculation by removing a styrofoam plug from the inoculation site and inspecting for a whitish fungal growth in the inoculation hole. If wax rather than styrofoam plugs was used to seal the holes, then a small piece of bark near the inoculation site may be removed to see if the mycelium is colonizing the wood. If the wood appears dark or of a color other than whitish, then the shiitake inoculum did not successfully colonize the inoculation site, most likely due to competing contaminant microorganisms and/or low log moisture levels.

MONITORING LOG MOISTURE CONTENT

Moisture content (MC) may be measured by either 1) cutting a disc of wood from the end of sample logs, recording fresh and then dry weights and calculating the percentage moisture; or 2) using electric moisture meters for rapidly determining internal log moisture levels. To use the disc method described by Field and Forest Products, select several logs and cut a 6-inch section from one end of each log. Cut an additional 1-inch disc from the log and record its fresh weight (FW) as well as that of its companion log.

Transfer the disc to an oven and heat at 175°F for eight hours with the door slightly ajar, remove and reweigh. Dry it for an additional hour, again in the oven, and reweigh. If there is no further weight loss, the end point or dry weight (DW) has been reached.

Use the following equations to determine log moisture content:

$$\frac{FW-DW}{FW} \times 100 = \% MC$$

If the MC value is below 35%, then the logs should be watered immediately to ensure adequate internal moisture for survival and growth of the fungus.

To further monitor the log moisture content during the growing season, label the companion logs from the previous analysis and calculate the DW of each entire log.