

# forest farming

## shiitake mushrooms

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*Shiitake mushroom cultivation is a growing enterprise for many hobby producers and small farmers. Whether the benefits you derive are from additional income or the enjoyment of producing tasty, fresh, nutritious food, there is a lot to gain from mushroom cultivation.*

*This fact sheet is intended only as an introduction to shiitake mushroom cultivation. For further information, please contact your cooperative extension office, CSTAF, or one of the listed contacts.*

### Topics in this Fact Sheet :

- what equipment do I need?*
- how do I grow the mushrooms?*
- is there a market for my product?*
- where can I get more information?*

### Growing

Mushrooms are the sexual organs of **fungi** and contain the **spores** which can germinate into new **mycelia**, the vegetative part of the fungus.



Photo by Roy Carter

*Logs should be from 3 to 8 inches in diameter, and about 4 feet long.*

*Smaller logs can dry out too quickly, and larger logs can be cumbersome.*

*These logs require a lot of handling!*

### Materials you will need:

*Spawn from a reliable source.*

*Fresh-cut logs as a substrate.*

*Shade Cloth. For proper shade and protection (squirrels!)*

*High speed drill for inoculation.*

*Wax and heating source to seal in spawn. Apply with a turkey baster or small brush.*

*Innoculation equipment. A plunger for sawdust spawn, or a hammer for plugs.*

Mycelia absorb nutrients for the fungi by digesting decomposing organic material outside of their bodies.

For successful mushroom cultivation, as with all crops, you need to provide the proper habitat for your spawn, i.e., a proper **substrate**.

The substrate, usually a hardwood log, will provide nutrients, moisture, and shelter.

Oak logs, such as laurel oak, produce the best shiitake mushrooms, though other hardwoods like sweetgum may be used. Pines and red oaks are to be avoided.

In addition to getting the right species, you need fresh logs to ensure that unwanted fungi haven't already attached themselves.

It is recommended that logs are cut either in late fall, or late winter/early spring, when there is the maximum amount of stored carbohydrates.

## ***Innoculating and Incubating***

Innoculate logs by drilling holes and inserting spawn, which come in either plug or sawdust form and in cool, warm, and wide-range seasonal varieties, depending on your climate.

Coat the holes with hot wax to maintain proper moisture content and protect spawn from contamination. The ends of logs can be sealed as well.

Logs need to incubate until mycelia have colonized the entire log (6 to 18 months).

Logs can be placed in several different patterns with shade cloth cover for an optimal balance of moisture and aeration. <http://www.unl.edu/nac/afnotes/ff-2/ff-2.pdf>.

## ***Harvesting***

One flush lasts about a week with an eight to twelve week rest period in between. You can synchronize fruiting by chilling the logs entirely in cold storage or cold water immersion.

## ***Further Information:***

*Farming Exotic Mushrooms in the Forest*. Agroforestry Note 13. <http://www.unl.edu/nac/afnotes/ff-2/ff-2.pdf>.

Alabama Shiitake Growers Association. (205) 532-697.

Florida Mushroom Growers Association.  
Charlie Tarjan, (352) 377-7403.

The Florida Mushroom. <http://www.flmushroom.com>.

The Mushroom Growers' Newsletter  
<http://www.mushroomcompany.com>

*Shiitake Mushrooms Production and Marketing*. Virginia Tech and Maryland Cooperative Extension.  
<http://www.naturalresources.umd.edu/Pages/shiitake.htm>.

*Small Farm Today*. bi-monthly periodical.  
<http://www.smallfarmtoday.com>

Stamets, Paul. 1993. *Growing Gourmet and Medicinal Mushrooms*. Ten Speed Press, CA.

State Farmers Markets. [http://www.ams.usda.gov/FarmersMarkets/States/\(your\\_state\\_here\).htm](http://www.ams.usda.gov/FarmersMarkets/States/(your_state_here).htm).

## ***Common Methods for Arranging Shiitake Logs***

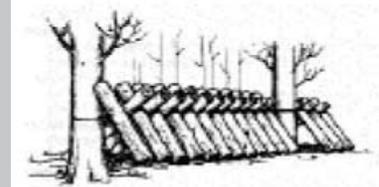
***Criss-Cross Method***



***Lean-to, Slope Method***



***X Pattern Method***



images from: <http://www.unl.edu/nac/afnotes/ff-2/ff-2.pdf>.

Daily afternoon harvests are recommended, by twisting or cutting the mushroom at the base, then placing the mushrooms in a box and refrigerating them.

## ***Marketing***

Markets need to be investigated before and during production as refrigerated mushrooms have a short shelf life and need to be sold immediately.

Farmer's markets, health food stores, restaurants and festivals are good places to market fresh, dried, or processed mushrooms. It is best if you set a contract with buyers before you harvest, so that you understand the requirements of your buyers, and don't have to rush around finding buyers during harvest.

Value-adding strategies such as drying, or producing gourmet shiitake dinners, sauces, and gift jars can increase profits and reduce the risk of losing mushrooms you do not sell immediately.

## ***Suppliers***

Allied Mushroom Products. AR. 501-361-5938.  
Field and Forest Products, Inc. WI. 715-582-4997.  
Fungi Perfecti. WA. 206-426-9292.  
Mushroompeople. TN. 615-964-2200.  
Sylvan Spawn Laboratory, Inc. PA. 412-545-9113.

## ***Contact us!***

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