Growing mushrooms on logs

Low budget - shade

Shade Cloth

- 60% shade is best for most shrooms

Mist Watering system

Soak logs before inoculation and to force logs to produce

- Don’t allow new logs to dry out prior to use, inoculate within 3 weeks of cutting.
- Best time to inoculate is spring – anytime other than winter. Fungus must colonize wood before winter sets in.
- Logs should be 4”- 6” diameter and 30 - 40” long.
- Oaks, sugar maple, ash, hickory and ironwood (even Sweet Gum) are good for most shroom varieties.
- Soak new logs for about 24 hours prior to drilling holes and plugging. Allow bark to dry.
- Water should be cool to cold especially if forcing.
- Most inoculated logs will start producing on their own within 6-9 months – spring


Inoculated

- Water should be non chlorinated, if possible or let stand for a day.
- To force a log to produce soak the inoculated log (6-9 months old for full inoculation) in a cold water bath for 12-20 hours. “Tap” log on ground to force it?? Soaking longer than 24 hours can kill the fungus.
- Allow forced log to rest for 6-8 weeks before forcing/soaking again.
- Keep logs moist – but allow bark to dry out occasionally.
- A good log can produce for up to 3, maybe 5 years? Rule of thumb is about 1 year of production for each inch of diameter.
- Keep logs off ground to avoid contamination.
- Some recommend leaning logs instead of horizontal stacking. Can partially bury logs or use fresh stumps to cut down on watering.

  ??possible contamination???

The logs that will usually produce the highest yields of shiitake are:
oaks, chestnut and ironwood

Oyster produces best on cottonwood, willow and sweet gum…….
Avoid cedar, black locust and walnut

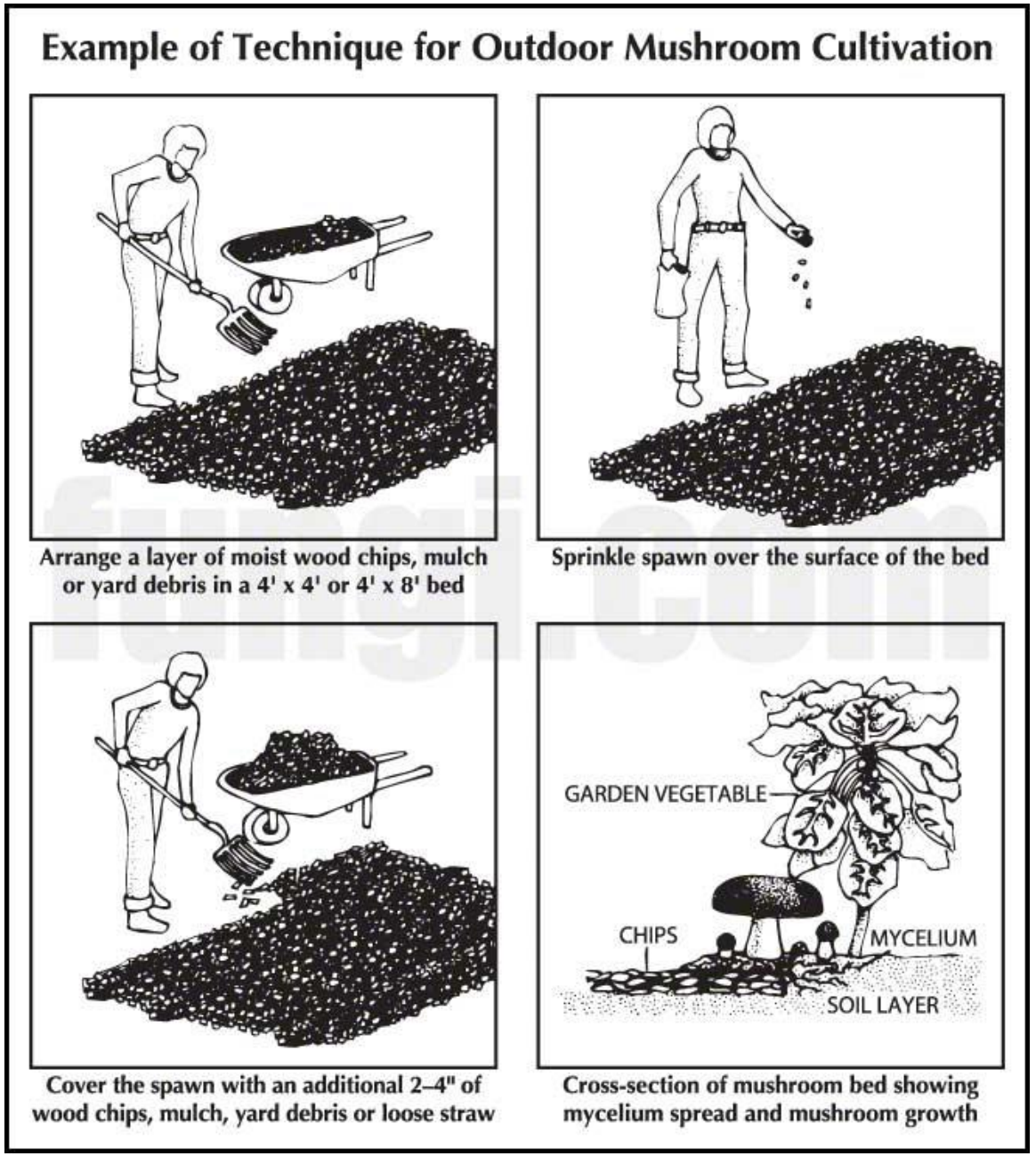
Wood Type	Recommended Mushroom Species
Hardwoods	
Alder	Shiitake, Blue Oyster, Pearl Oyster, Turkey Tail
Ash	Shiitake, Blue Oyster, Turkey Tail
Aspen	Oyster, Turkey Tail
Beech	Shiitake, Blue Oyster, Pearl Oyster, Turkey Tail
Birch	Blue Oyster, Pearl Oyster, Turkey Tail
Chestnut	Lion's Mane, Shiitake, Turkey Tail
Elm	Reishi, Lion's Mane, Pearl Oyster, Turkey Tail
Eucalyptus	Shiitake, Turkey Tail
Hickory	Shiitake, Turkey Tail
Honey Locust	Maitake, Turkey Tail
Maple	Reishi, Lion's Mane, Blue Oyster, Pearl Oyster, Turkey Tail
Oak	Reishi, Maitake, Lion's Mane, Shiitake, Blue Oyster, Pearl Oyster, Turkey Tail
Plum	Reishi, Turkey Tail
Poplar	Pearl Oyster, Turkey Tail
Sweetgum	Reishi, Shiitake, Blue Oyster, Turkey Tail
Softwoods	
Douglas Fir	Chicken of the Woods, Phoenix Oyster, Turkey Tail
Fir	Phoenix Oyster, Turkey Tail
Piñon Pine	Phoenix Oyster, Turkey Tail
Spruce	Chicken of the Woods, Phoenix Oyster, Turkey Tail

- **Trees to avoid for shiitake or most other shroom cultivation include conifers, fruit trees, elm, hackberry, sassafras, soft maples (red and silver), sourwood, tulip poplar, dogwood, black locust, beech and some of the hickories**

just a few websites

- http://www.fungi.com/
- http://www.gmushrooms.com/Plugs/MushroomCultivationGuide.pdf
- https://www.mushroompeople.com/how-to-cultivate-mushrooms-in-natural-logs/
- https://shop.mushroommountain.com

Patch method – wood chips, sawdust..
$26.00



Bag method - $25.00

$10.00 and up

logs

3 step process

- Pick type of mushroom you want, match up with type of log as best you can, purchase plugs or sawdust.
- Cut fresh log – clean (no dirt – lichens and moss are ok) dry bark is better for drilling.

Step 1 – drilling holes

- Drill 5/16” diameter holes to a depth slightly deeper than plug is long or about 1 – 1 1/4”. 1” depth for sawdust.
- Holes should be about 6” apart and each row about 3” from other rows. Alternate or diamond pattern the holes over all sides of the log.
- Holes should stop about 2” from end of log

- A 4” diameter x 36” long will usually take 40 or so plugs.


SHIITAKE

Step 2 – insert plug

Sawdust requires a tool instead of simply pressing/hammering in plugs.

Step 3 – wax plug

Wax - $5.00 for 1 lb cheese or bees wax

- Most logs can produce for about 3 years?
- On average a log can produce 1-2 lbs per year.
- Most local tree species are OK. Oak is probably the best.
- Diameter and length of log can vary.
- Can even inoculate stumps, sawdust and wood chips.
- Keep logs from drying out. Water about every 2-3 weeks depending on rain fall. Sometimes almost everyday during hot/dry part of summer
- Keep logs in shaded area. Can use artificial “shade cloth” – 60% range.
- Can stand logs up and lean them against something/each other or stack/rick them.

- Logs can be inoculated in the winter? But have to keep logs warm for about 3 months to insure log is colonized. Can place logs outside at that point, the fungus can survive – 50 F just fine, after colonization is complete.

Ready for picking

Shiitake

Oyster

Economic potential and marketing

Costs associated with the cultivation of mushrooms on logs are mainly attributed to the workforce and the purchase of the plug spawn. The costs and revenues detailed in the following table are for information purposes only. Salary for the employees is estimated at 25$ per hour, which includes all expenses and travel. Generally, a small profit can only be obtained if the woodlot owner does the work himself.

Establishment of mushroom cultivation on logs

Inoculation of one cord of wood (4' x 8' x 8') of Trembling aspen (adapted from O'Breham 2006)

Cost of inoculation			
Labour (2 people @ 25$ per hour)[1]	40 h x 25$/h x 2		2 000.00 $
Equipment			
see liste in this document[2]			- $
Material and micillium			
1 corde of Trembling aspen			- $
Plug spawn			1 000.00 $
	Total cost		**3 000.00 $**
Annual Costs			
Maintenance (1 person)	16 h		400.00 $
Irrigation			
Weed control			
Leaf litter control			
Follow-up and inspection			
Harvesting			
During spring and fall (1 person)	16 h		400.00 $
	Total annual cost		**800.00 $**
Productivity			
Potential for 590 kg of mushroom during - the lifespan of the corde (approx. 5 yrs)			118kg/year
Revenues (for 5 years)			
Sale of fresh mushrooms @ approx. 8.50$/kg or		590kg	**5 015.00 $**
Sale of dehydrated mushrooms @ approx. 2$/20g (loss of 90% of mass)		59 kg	**5 900.00 $**
Annual Revenues			
Fresh	118 kg		1 003.00 $
Dehydrated	11.8 kg		1 180.00 $

[1] 25$/hour = the average cost of a day labourer including travel and expenses

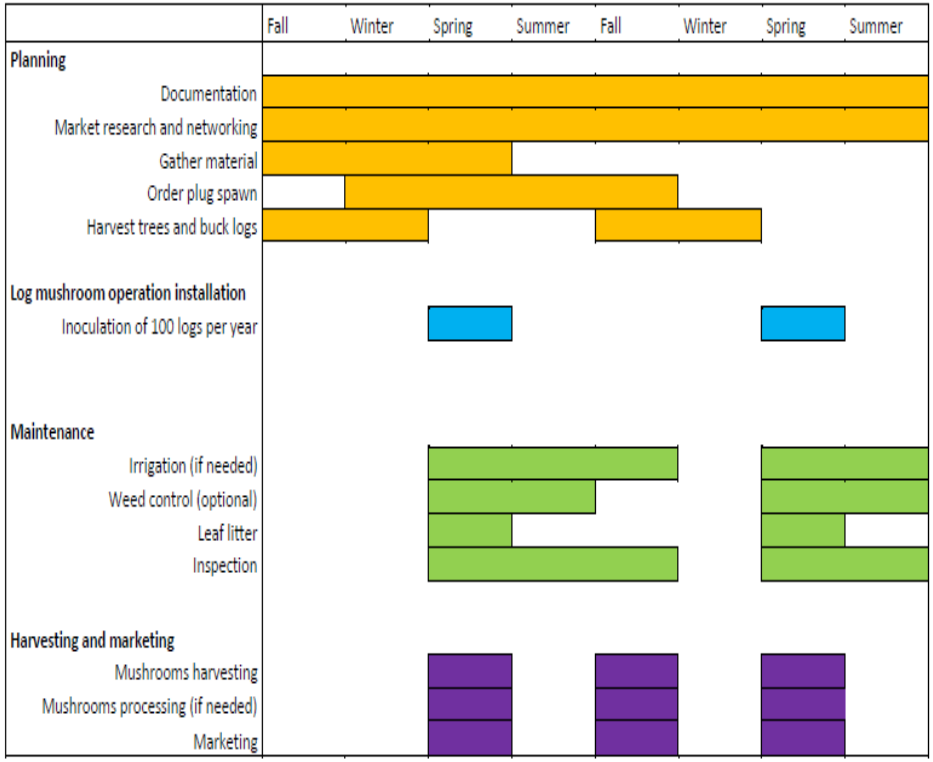
[2] Generally, land owner has this equipment

[3] Tree commonly available or use species available on your land

[4] Hours distributed during the whole growing season

Example of a schedule for establishing a log mushroom cultivation area on your woodlot

This table can be used as a reminder for the tasks to be completed at specific times of the year in order to have a successful log mushroom growing operation. It is for information purposes only. If you plan on having a mushroom growing operation for years to come it is recommended to inoculate the same amount of logs per year. By doing so, your production should be fairly constant year after year. Keep in mind that the production periods and time needed for incubation varies depending on the type of wood and mushrooms. Make sure to remove all logs that have been used up or the ones that have been infected by wild mushrooms, insects or diseases. According to some authors, if you inoculate approximately 100 logs yearly, you should have a small scale mushroom growing operation.




Q & A