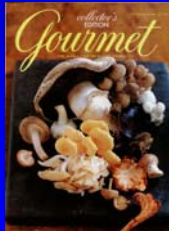




Shiitake Mushroom Cultivation in Agroforestry

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The Big Picture

Mushroom Strain
Substrate
Spawn & Inoculation
Spawn Run & Laying Yard
Forcing & Harvesting
Storage & Shipping
Products & Markets

Lentinula edodes (Shiitake)



Mushroom Strain

Morphology

Color, Ornamentation, Density

Cultivation Properties

Fruiting Season, Force-fruiting

Spawn Run

Wide Range (WR) strains – faster
Cold Weather (CW) strains – slower
Warm Weather (WW) strains – intermediate

Substrate

Species

Sugar maple ≥ White oaks > Red oaks

Condition

Sapwood - lots
Bark - intact
Decay - none
Season of Harvest - dormant
Early Harvest – sugar maple yes

Substrate Species

Red oak



Sugar maple

Harvested a little too late (powder post beetle)



Inoculum Form



Sawdust
- faster spawn run

Dowel
- autumn inoculation
- slower spawn run

Thimble
- more expensive
- convenient
- no wax

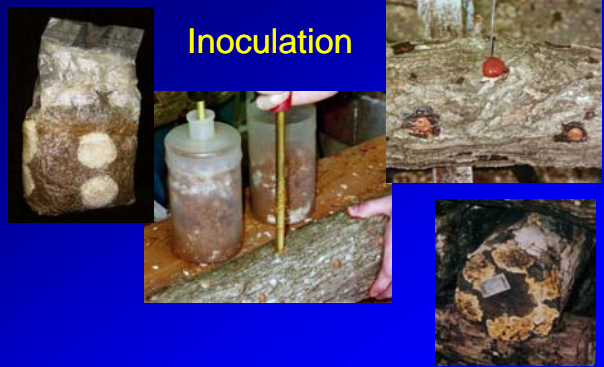
Inoculation Equipment

Sawdust Spawn

very high speed drill
12-mm screw-tip drill bits
spring-loaded inoculation tool
hot plate, pot, cheese wax, daubers



Inoculation



Inoculation Equipment

Dowel Spawn

very high speed drill
8.5-mm screw-tip drill bits
ball-peen hammer
hot plate, pot, cheese wax, daubers



Inoculation Equipment

Thimble Spawn

very high speed drill
12-mm screw-tip drill bits



Spawn Run

- air circulation
- protection from dessication

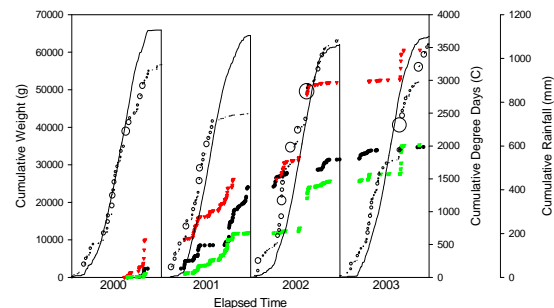


Laying Yard



Armillaria

rhizomorphs invading
shiitake stick



Forcing shiitake



Cool water better

Harvesting

Grade – Grade 1 (the best), and Grade 2 (utility)
Cap – 50-80 % expanded, 1-4-in dia, undamaged
Gills – white, clean, unbruised
Stem – intact, no longer than cap is wide

Frequency – at least daily
especially during wet weather

Thoroughness – to reduce pest populations

Storage

Refrigerate – 34-40 F immediately after harvest.
- frost-free refrigerator best
- in containers with ventilation

Shipping

Ship an extra oz. per lb, to account for shrinkage.
Overnight to end user,
ship 70-80 % expanded as Grade 1.
Overnight to middleman,
ship 50-70 % as Grade 1.



Products



Fresh Mushrooms
Dried Mushrooms
Powdered
Intact
Value-Added
Beverages



Thank You !

www.centerforagroforestry.org
www.fieldforest.net