

Consciousness



& Psychedelics Conference

The Science and Magic of Mushrooms

Michael Schatte

The logo for Midnight Mushroom Co. is centered on a background of vertical wooden planks. It features a white hexagonal shape with a thin black border. Inside the hexagon, the words "MIDNIGHT" and "MUSHROOM" are stacked in a large, bold, black, sans-serif font. Below them, "CO." is written in a smaller, similar font, flanked by two short horizontal lines. A single horizontal line is positioned above "MIDNIGHT".

MIDNIGHT MUSHROOM CO.

What we do

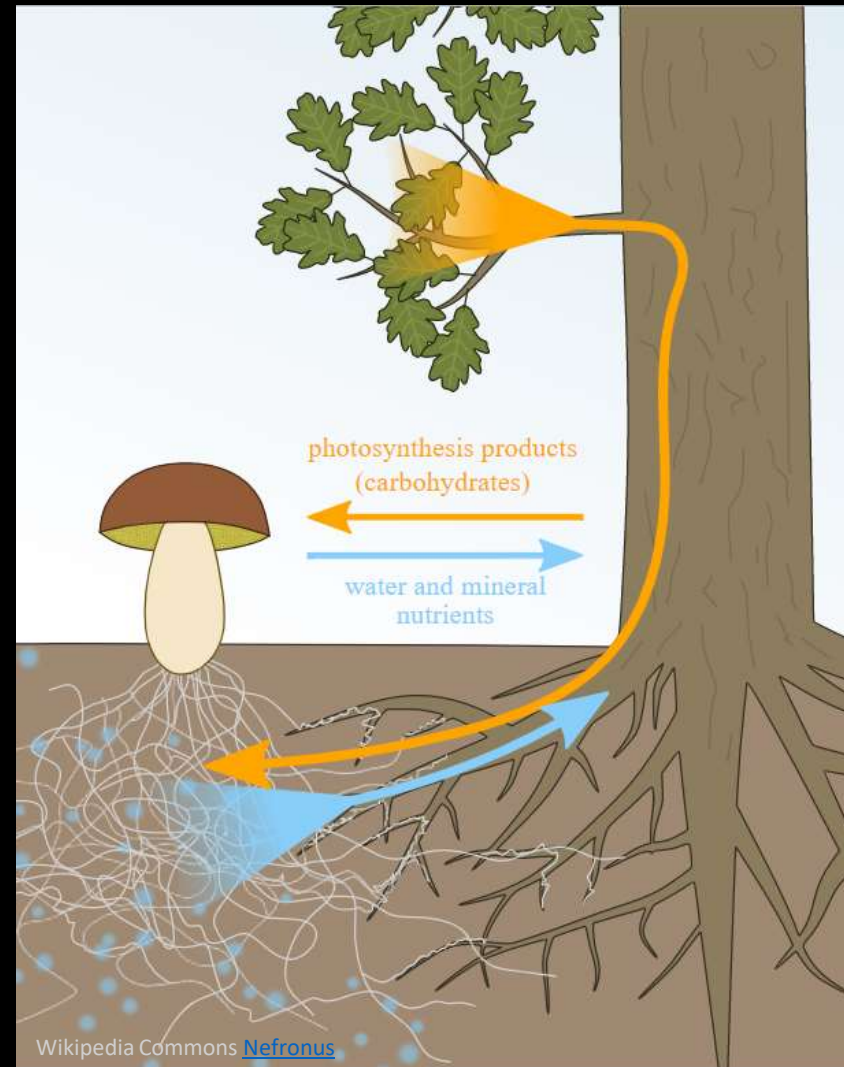
- Fresh Mushrooms Available Weekly
- Oyster Mushroom Varieties
- Mini Mushroom Farm Kits
- Basic and Advanced Classes
- In-depth Mycology Courses coming soon!

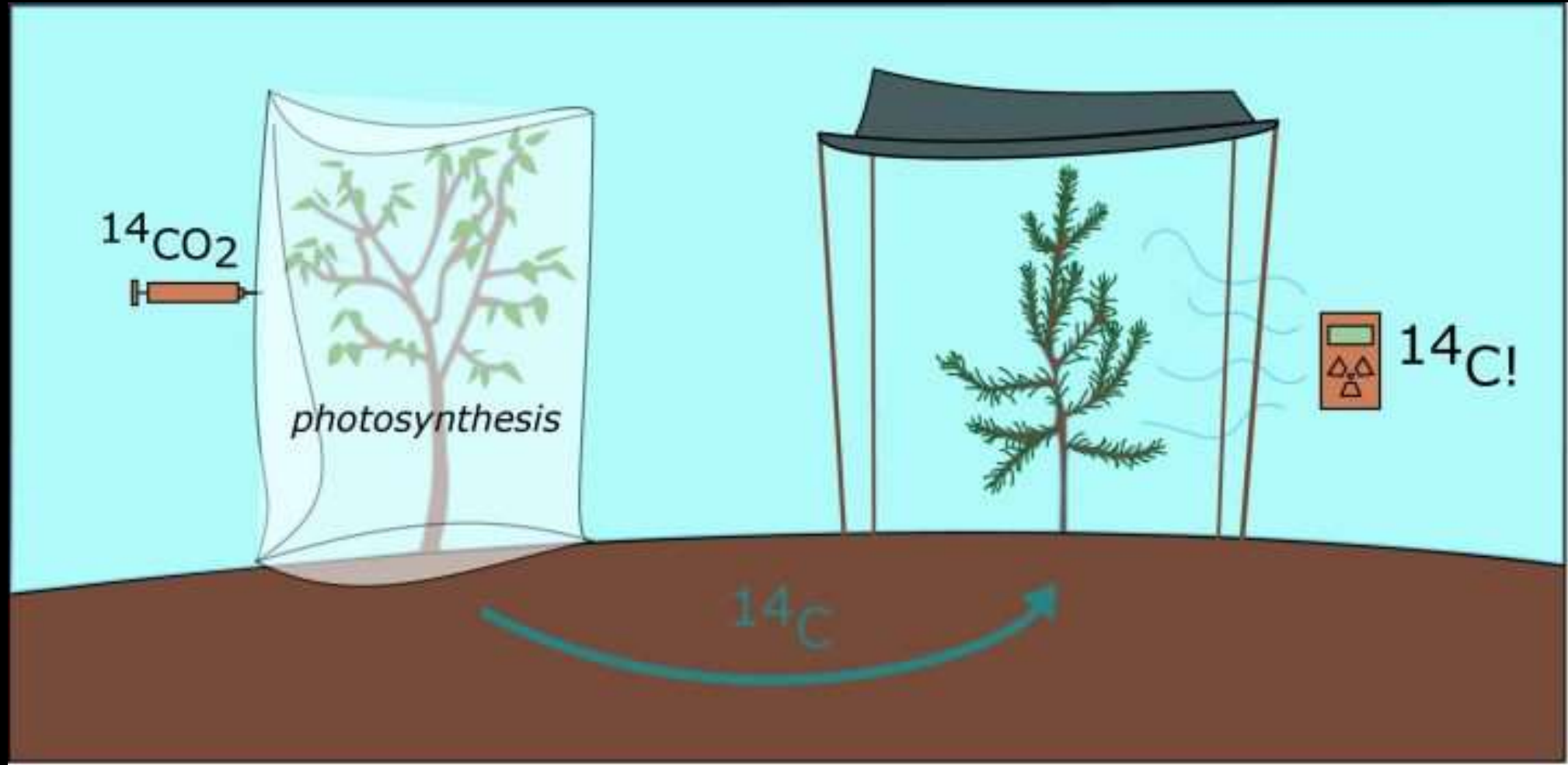
Gourmet Mushrooms



Mycorrhizal Fungi

Myco (fungus) + rrhizae (root)





Isotope tracing Source: <http://sitn.hms.harvard.edu/flash/2019/exploring-the-underground-network-of-trees-the-nervous-system-of-the-forest/>



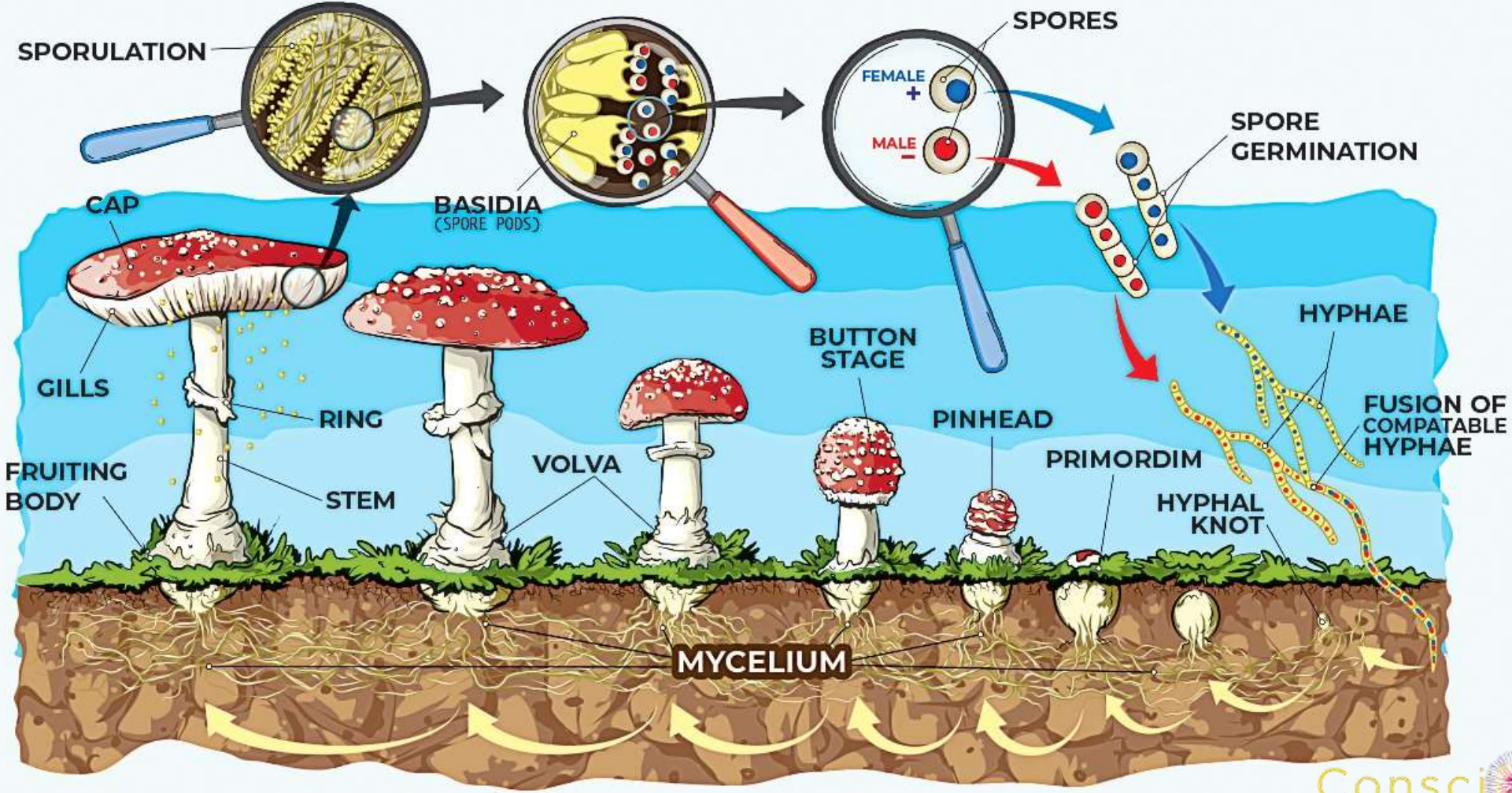


Purpose of a Mushroom

- Reproduction - Produce and spread spores
- Food – Most have benefit of being delicious and edible
- Communication – Complex processes to create Psilocybin, but why?



Fungi Lifecycle





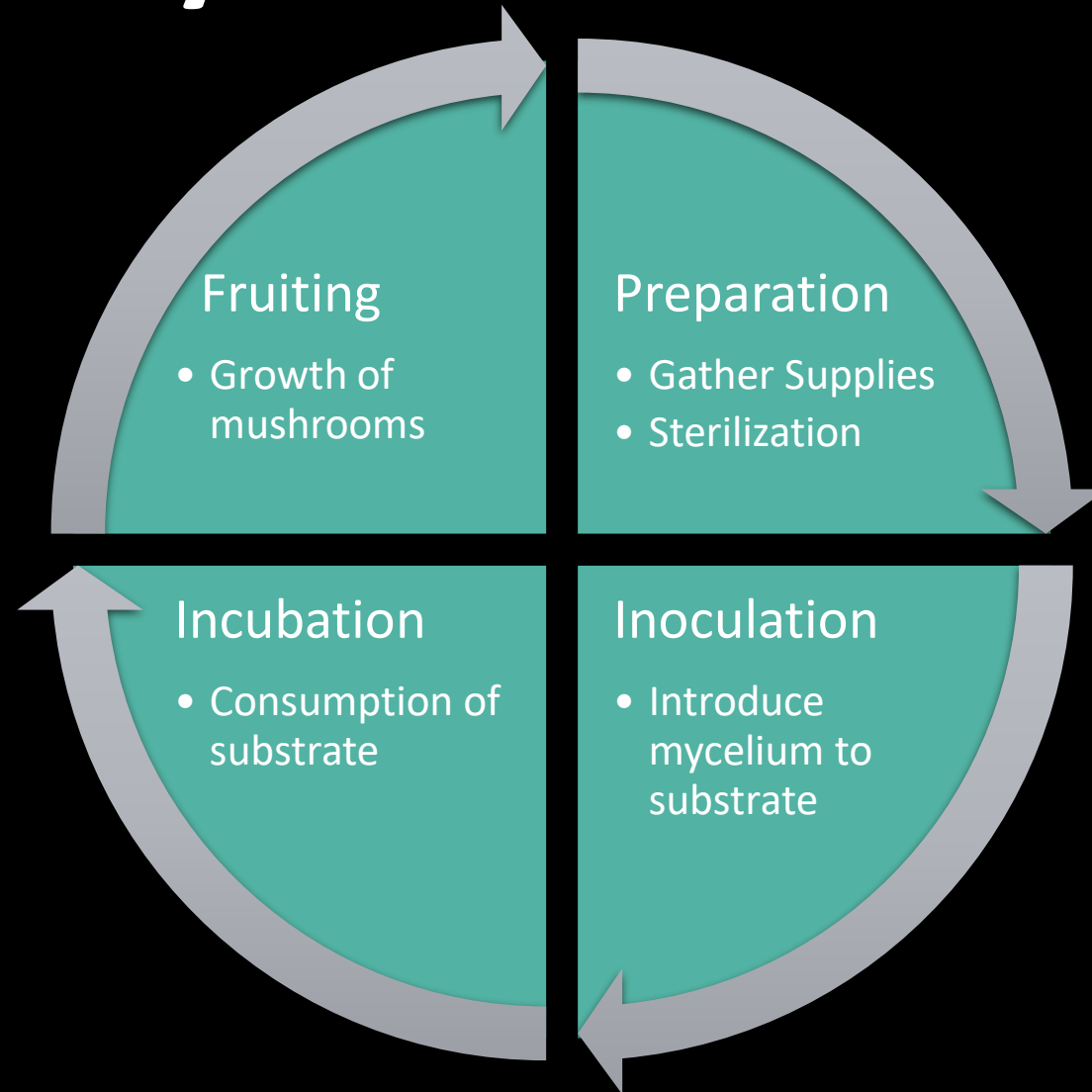
Mycelium

- Main vegetative part of fungi
- Consists of massive network of microscopic hyphae threads
- Consumes substrate by producing enzymes

Legal Disclaimer

Midnight Mushroom Co and myself are not advocating or endorsing the breaking of US federal laws by cultivating illegal Psilocybe mushrooms. The content of this presentation is solely for educational purposes. Only you are responsible for your own actions

Cultivation Cycle



Substrate

- **Primary Decomposers – Wood**
 - Oyster mushrooms, Chanterelle, Chicken of the Woods, Lions Mane, Psilocybe
- **Secondary Decomposers – Compost**
 - White Button, Cremini, Portobello, Shaggy Mane, Psilocybe

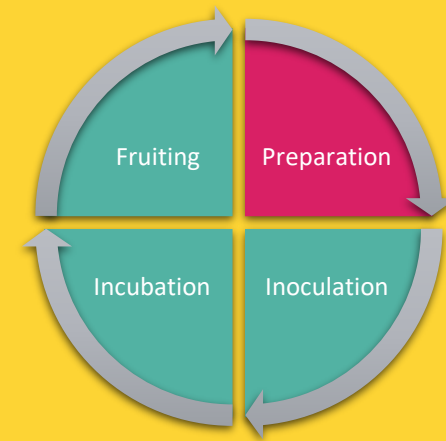




Substrate

Supplemented Hardwood (50/50 Mix)

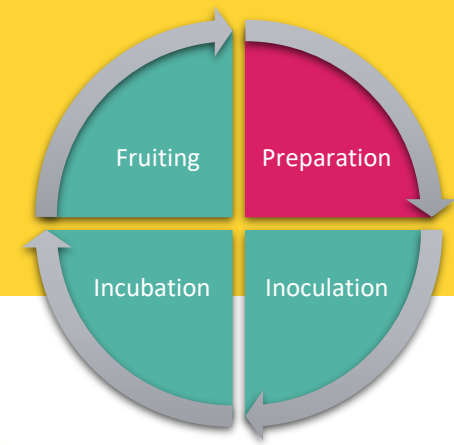
- **2.5 Cups** - Hardwood Fuel Pellets
 - Oak is best, **AVOID PINE!**
 - Available at Atwoods, Home Depot, Tractor Supply (only during winter)
- **2.5 Cups** - Soybean Hull Pellets
 - Available at locally owned feed stores
 - Handley Feed Store, Fort Worth
- **1.4 Liters** - Tap Water
- Requires pressure cooker or atmospheric steam sterilizer



Substrate

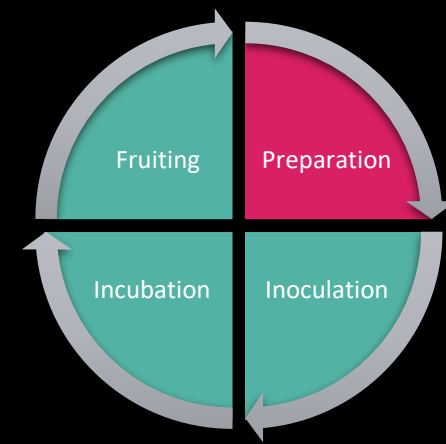
Coco Coir/Vermiculite

- **1 Brick Coco Coir**
 - Available at Home Depot, Walmart, etc.
- **2 Qt Vermiculite**
 - Available at Home Depot, Walmart, etc.
- **4 Qt Water**
- **5 Qt Grain Spawn**
 - Highly recommended over LC and multispore syringe





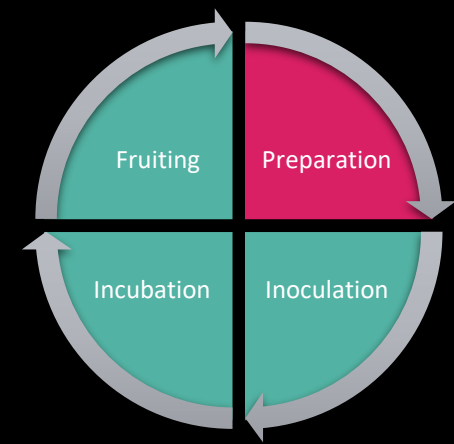
Substrate Bagger



- Provides exact measurements automatically
- Easily create mushrooms bags quickly
- Commercial volume
- **Home User:** Use basic measuring cups



Container



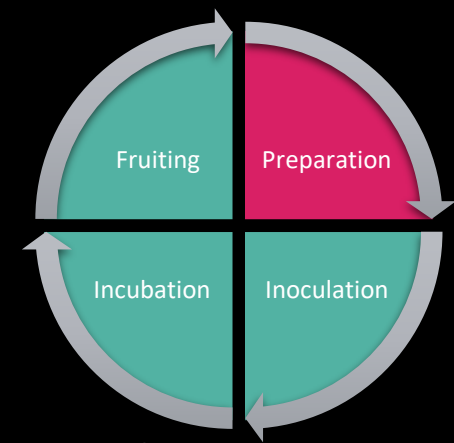
- Provides sterile environment inside
- Bags, Plastic Totes, etc.
- Retains moisture
- Breathable

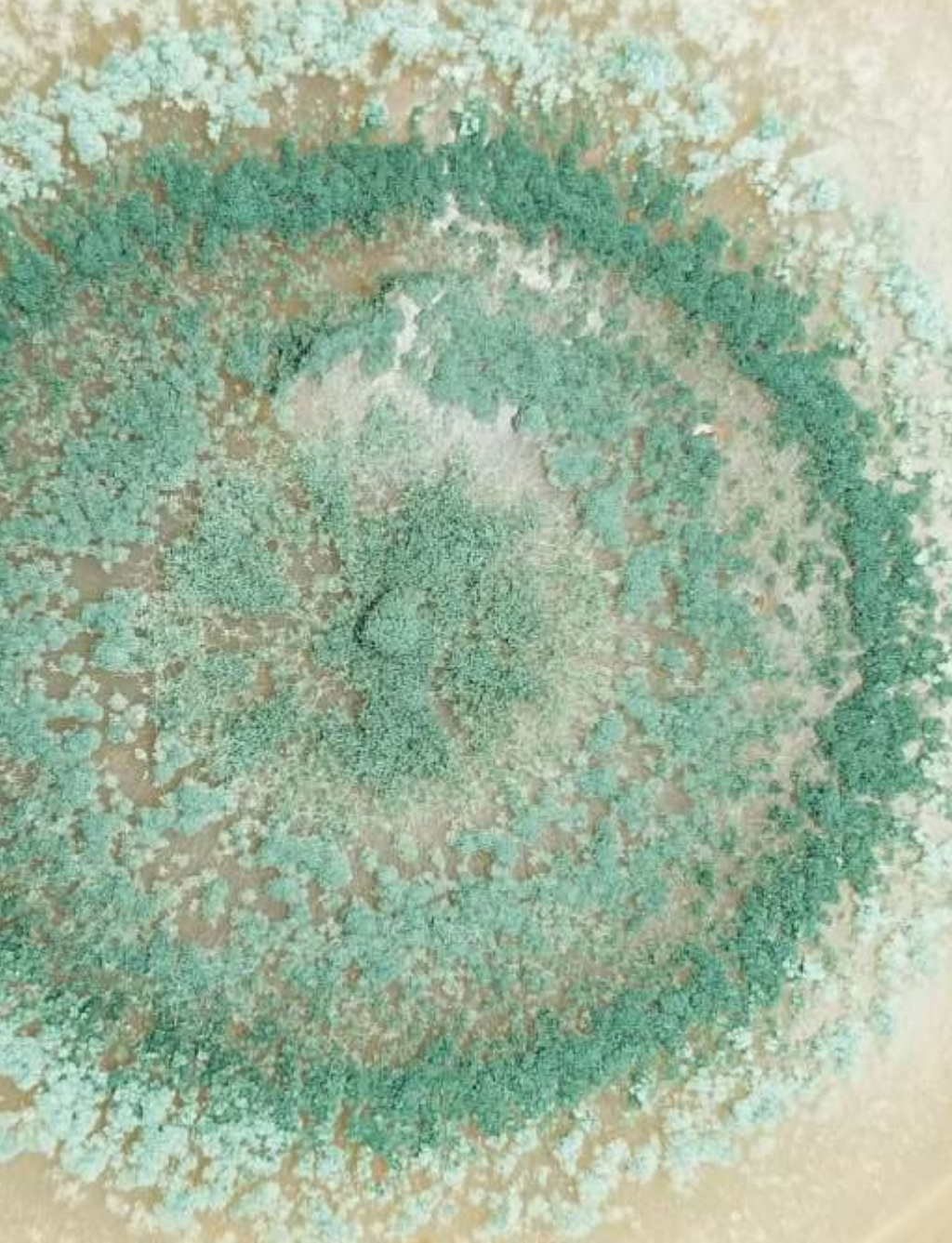




Sterility!

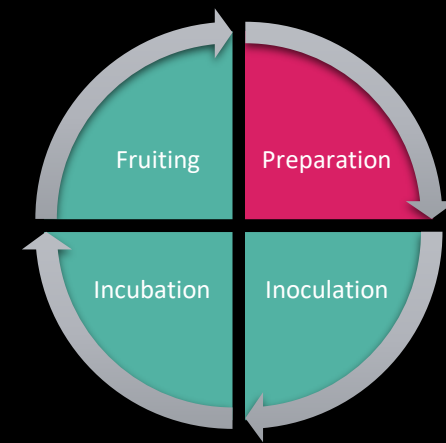
- Kill off and prevent any competing molds, bacteria and other fungi.
- 91% Alcohol FTW!!
- Substrate
- Work area
- Tools
- Yourself





Contamination

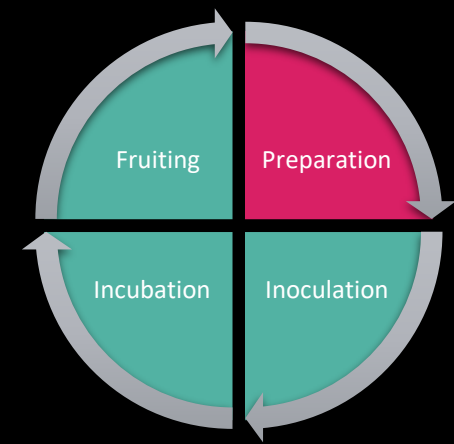
- Trichoderma
- Cobweb Mold
- Bacteria
- Competition for nutrients
- Fungi isn't contaminated, substrate is





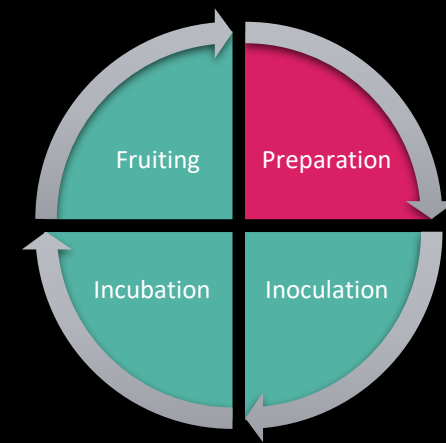
Spawn

- Multi-spore syringe
 - Individual spores, requires germination
- Liquid Culture
 - Living mycelium in nutrient liquid
- Grain Spawn
 - Mycelium attached to nutritious grains





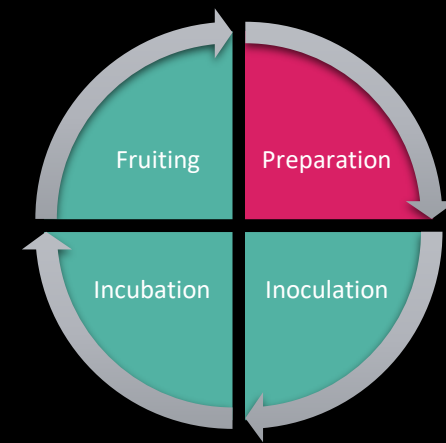
Sterilization



- Substrate must be sterilized (or super pasteurized)
- Atmospheric Steam Sterilizer
- **Home users:** Highly recommend pressure cooker



Laminar Flow Hood

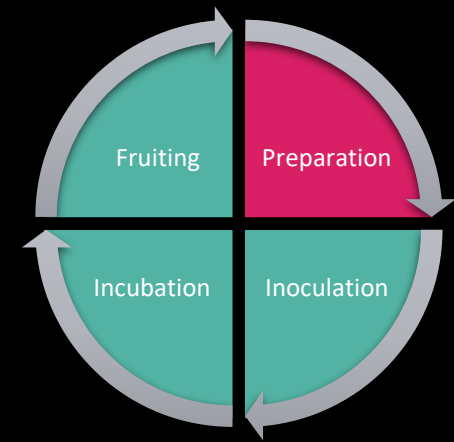


- Commercial or dedicated hobbyist
- Creates clean room environment in airflow
- HEPA filters out 99.997 of contaminants
- Used to inoculate bags/plastic containers



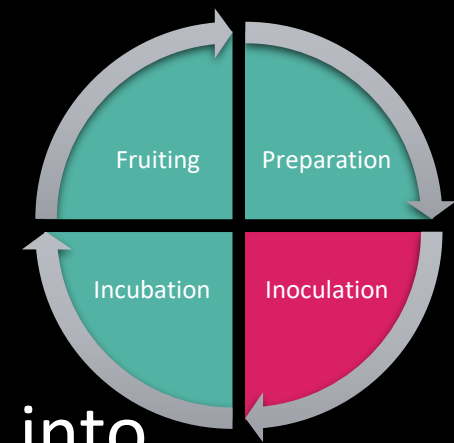
Still Air Box

- Great for Home Users
- Provides controlled sterile environment.
- Lab work at home
- Cheap!





Inoculation

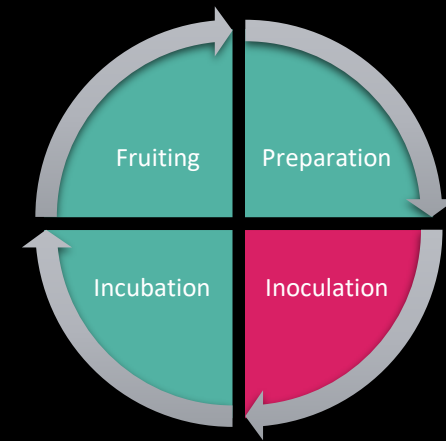


- Introduction of mycelium into sterile substrate
- Use SAB or Flow Hood for this!!
- 3 Methods
 - Multi spore syringe (slow)
 - Liquid Culture
 - Grain Spawn



Inoculation

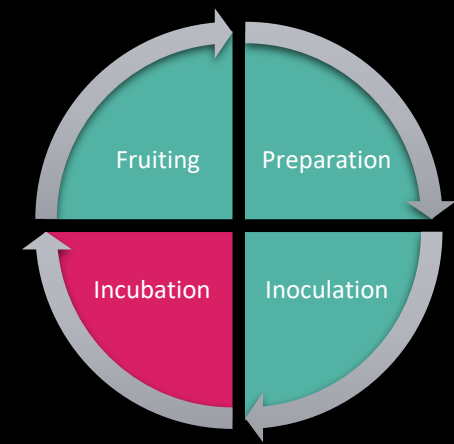
- Bag is sealed to avoid contamination
- Mixing of substrate with spawn
- **Home Users:** Can use **sterile** tools or gloves to mix substrate





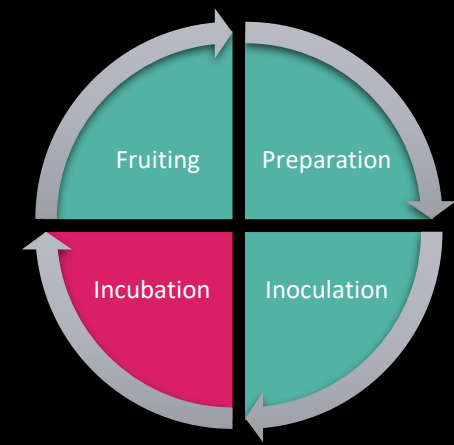
Incubation

- 2-3 weeks for most species
- Be patient!
- No need for warming, room temp is fine
- Don't open it or you risk contamination





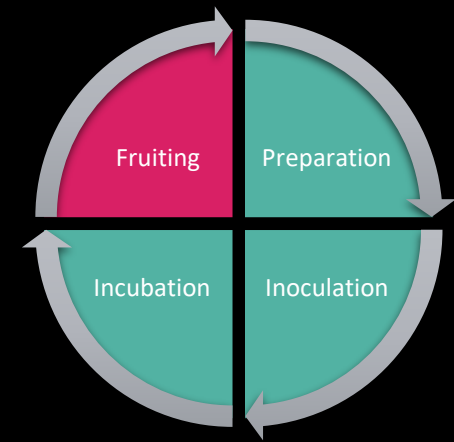
Incubation



- Contamination is more susceptible during the early stage
- Mycelium produces its own defenses to contamination



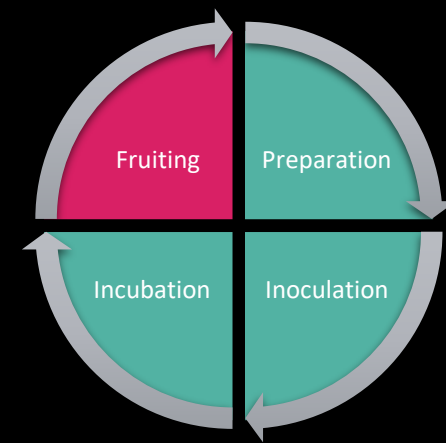
Fruiting



- Now we're growing mushrooms!
- Main triggers for most species
 - Fresh Air
 - Humidity



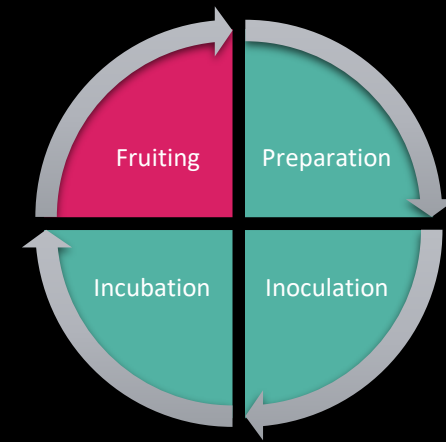
Fruiting Chamber



- Fresh Air Exchange
 - Mushrooms make CO2 and need oxygen
 - Exhaust fan or venting
- Humidity
 - Ultrasonic Disc Humidifier “Cool Mist”
 - Perlite – rocky material that retains water



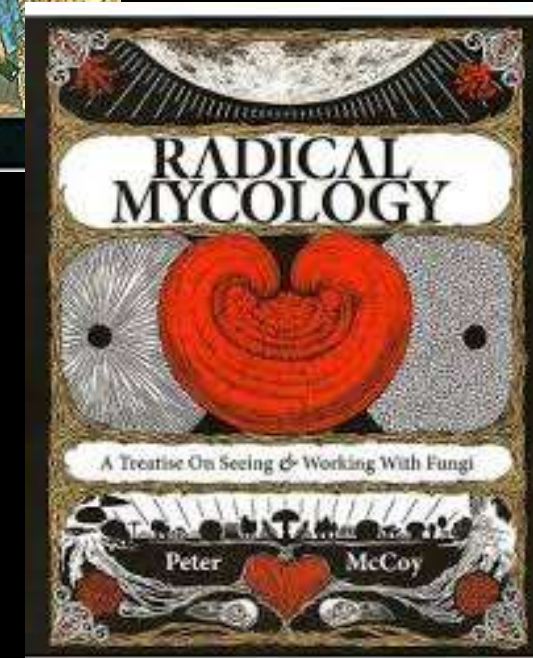
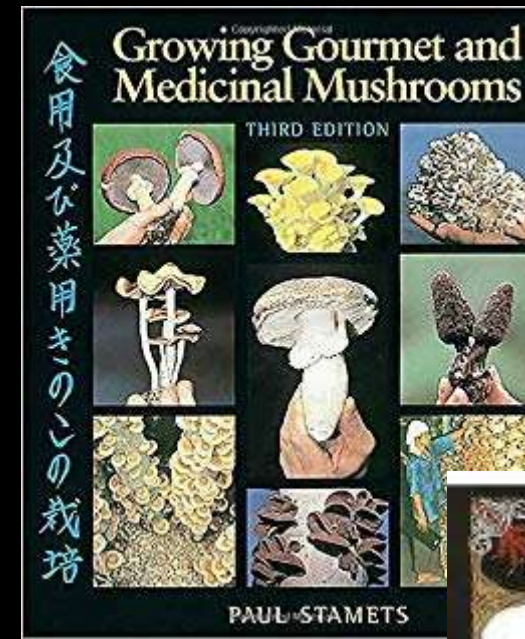
Fruiting Chamber



- Shot Gun Fruiting Chamber
 - 64 Qt Tote
 - 3-4 in. moistened Perlite
 - Simple, low maintenance
- Climate Controlled Mini Greenhouse
 - Requires humidifier
 - Exhaust Fan
 - Must balance humidity with fresh air

Great Resources

- Midnight Mushroom Growers (FB Group)
- Mushroom Growing (FB Group)
- Shroomery.org (Tons of Tek's)
- r/Shrooms (Reddit)
- r/Mycology (Reddit)
- r/SporeTraders (Reddit)



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