

Cultivating Maitake (*Grifola frondosa*), also known as "Hen of the Woods," is a bit more challenging than growing Turkey Tail or Reishi. Maitake is a slower-growing fungus that requires patience, specific temperature drops to trigger fruiting, and careful humidity management, as its delicate primordia (pins) will abort if they get too wet.

Below is a detailed Standard Operating Procedure (SOP) for cultivating Maitake indoors using supplemented hardwood sawdust blocks.

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### Phase 1: Materials and Equipment Needs

- **Spawn:** Maitake grain spawn or sawdust spawn.
  - **Substrate:** Hardwood sawdust (oak is highly preferred for Maitake, though beech or maple also work).
  - **Supplement:** Wheat bran or oat bran (soybean hulls can be used, but bran is standard for Maitake).
  - **Grow Bags:** Autoclavable mushroom grow bags with a 0.2-micron filter patch.
  - **Sterilization:** Pressure cooker or commercial autoclave.
  - **Inoculation Environment:** Laminar flow hood or a sanitized Still Air Box (SAB).
  - **Fruiting Environment:** A grow tent or fruiting chamber with strict humidity and temperature controls.
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### Phase 2: Substrate Preparation and Sterilization

Maitake benefits heavily from a rich, oak-based substrate.

1. **Mix the Substrate:** Combine your hardwood sawdust and supplement. A proven recipe for Maitake is:
    - o 5 parts oak sawdust
    - o 1 part wheat bran (or a similar nitrogen-rich supplement)
  2. **Hydration:** Gradually add water until the mixture reaches a **60% moisture content**. (When squeezed tightly, only a drop or two of water should be released).
  3. **Bagging:** Pack approximately 5 lbs (2.3 kg) of the hydrated substrate into each filter-patch grow bag.
  4. **Sterilization:** Load the bags into your pressure cooker or autoclave. Sterilize at **15 PSI (121°C) for 2.5 hours**.
  5. **Cooling:** Allow the pressure cooker to depressurize naturally. Let the bags cool completely to room temperature (usually overnight) before opening them to avoid killing the mycelium.
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### Phase 3: Inoculation

*Maitake is a slow colonizer, making it highly susceptible to competition. Flawless sterile technique is required.*

1. **Sanitize:** Thoroughly clean your hands, workspace, and the exterior of the spawn bag/jar with 70% isopropyl alcohol.
2. **Transfer:** In front of a flow hood or inside a SAB, open the sterilized substrate bag and introduce the Maitake grain spawn. Use an inoculation rate of **5% to 10% by weight**.
3. **Seal:** Immediately seal the top of the grow bag using an impulse sealer.

4. **Mix:** Shake and massage the bag thoroughly to distribute the grain spawn evenly throughout the substrate block.
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### Phase 4: Incubation (Colonization)

Maitake requires a relatively long incubation period.

1. **Environment:** Place the sealed bags in an incubation room.
  2. **Temperature:** Maintain a steady temperature between **65°F and 75°F (18°C–24°C)**.
  3. **Duration:** Let the bags sit undisturbed for **45 to 60 days**.
  4. **Observation:** The mycelium will slowly colonize the block. As it matures, the block may develop thick, crusty patches and produce an orange or brownish liquid exudate (metabolites). This is a normal characteristic of Maitake and indicates that the block is consolidating and preparing to fruit.
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### Phase 5: Fruiting (Triggering and Development)

Maitake usually initiates pinning *inside* the sealed bag before you expose it to fresh air.

1. **Primordia Formation:** Towards the end of the incubation period, watch the top surface of the block. You will see dark grey, brain-like lumps forming. These are the primordia.
  2. **The "Cold Shock":** To encourage robust fruiting, drop the temperature of the environment to **55°F–60°F (13°C–15°C)**. This temperature shift signals to the mycelium that it is time to fruit.
  3. **Opening the Bag:** Once the primordia are well-formed (about the size of a walnut), it is time to introduce oxygen. Do *not* remove the bag entirely. Instead, cut the top of the bag off, leaving a 2 to 3-inch "collar" of plastic standing up above the substrate. This collar traps a micro-climate of humidity directly around the developing mushrooms.
  4. **Fruiting Chamber Parameters:**
    - o **Temperature:** Maintain the cooler range of **55°F–65°F (13°C–18°C)**.
    - o **Humidity:** Maintain **85%–90% Relative Humidity (RH)**.
    - o **Crucial Note: Never mist Maitake pins directly.** If water pools on the delicate primordia, they will quickly rot or abort. Provide ambient humidity only.
    - o **Fresh Air Exchange (FAE):** Provide moderate FAE to prevent CO2 buildup, which causes elongated, malformed stems.
    - o **Lighting:** Provide 12 hours of ambient, indirect light daily.
  5. **Growth:** The grey brain-like lumps will slowly expand and differentiate into a beautiful cluster of overlapping, spoon-shaped caps.
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### Phase 6: Harvesting and Storage

From the time you open the bag, it usually takes **2 to 3 weeks** for the Maitake to reach full maturity.

1. **When to Harvest:** Harvest when the individual caps are fully fanned out and the edges are still slightly curled downward. If the caps flatten entirely or begin dropping a heavy white spore load, they are slightly past their prime but still usable.

2. **How to Harvest:** Grab the entire cluster as close to the base of the block as possible and gently twist and pull it free. Alternatively, use a sterilized knife to cut it cleanly away from the substrate.
3. **Culinary and Medicinal Prep:** The caps are tender and highly prized for culinary dishes, while the thick core/base is tougher but excellent for making medicinal broths, teas, or extracts.
4. **Storage:** Fresh Maitake can be stored in a paper bag in the refrigerator for up to a week. For long-term storage, slice the mushrooms and dry them in a dehydrator at **125°F–135°F (52°C–57°C)** until completely crisp, then store in an airtight container.