How to Grow Mushrooms…The Easy Way

Supply List:

- Mask
- Gloves
- Alcohol
- 2x spray bottles (one for alcohol, one for water)
- 2x 13-gal plastic storage box
- 32oz empty tin can
- Drill w/ 4-12mm step drill bit or soldering iron
- Vermiculite
- Perlite
- Brown rice flour
- Spores
- Butane torch
- Wide mouth glass jars with metal canning lids
- Hydrogen peroxide
- Micropore tape
- Desiccant
- Storage bag or jar
- Pressure cooker or large cooking pot with lid
- Dehydrator/sushi mat/drying rack
- Scissors
- Aluminum foil
- Heat Mat/Controller
- Coco coir
- Hammer & nail

Preparation

Cleanliness is key when it comes to staying away from contamination. It is the most important step to get a successful mushroom harvest. Wipe off all tools and work areas with alcohol to sterilize the environment. Wear sterile gloves and a mask to keep bacteria from transferring.

It is recommended to use an area that can stay extremely clean and has limited airflow/contaminants passing through for inoculation and colonization. You can always make a SAB (Still-Air Box) if you do not have a clean space. A SAB is a sealed container that limits air movement and keeps out contaminants. To make a SAB, you will need a 13-gal plastic storage box and 32oz empty tin can. Heat the top of the tin can and cut two holes in the plastic tote to create arm holes. The holes should be placed where you can keep your arms comfortable while working. The picture below is an example of what the SAB should look like.

To colonize your spores, you will need to prepare wide mouth canning jars for inoculation. For this step, you will need clean wide-mouth jars with metal lids. Take a hammer and nail and put four holes large enough for the syringe needle to fit into each lid. Separately measure out a 2:1:1 ratio of vermiculite: brown rice flour: gypsum. The vermiculite will need to be moistened with as much water as the vermiculite can soak up. The brown rice flour and gypsum should evenly coat the wet vermiculite. Add the mixture to ¾ of the jar and place an inch of dry vermiculite on top. Screw on the jar lid and cover with foil.

Sterilize your jars by alternately stacking them in your pressure cooker or pot to allow air movement into the holes of the lids. Add an inch or two of water to the bottom of the pot. Run your pressure cooker for 45 minutes or your pot for 90 minutes and monitor every few minutes. Let the jars cool down and then place directly into your prepared Still-Air Box or sterilized area. Mist with 70% alcohol.

A mushroom fruiting chamber can be made from a plastic tub with many holes punched into the sides and lid. This can be done by using a 4-12 mm step drill bit or a soldering iron. The holes should be covered with micropore tape to keep out unwanted insects or spores.
Pour perlite two inches deep into the plastic tub and add water until perlite is moistened. It is advised to add 5-10mL of three percent hydrogen peroxide to the perlite for sterilization purposes.

Inoculation

Remove foil from the jar and inject 1 mL of your spores into one hole below the top vermiculite layer. Place a piece of micropore tape onto the hole. Heat the needle of the syringe with a butane torch or gas stove between each injection to re-sterilize. Wait for the needle to cool and repeat injection steps.

Incubation

For the incubation process, you will need to put your inoculated jars into your Still-Air Box or other sterilized area where the mycelium will begin to colonize. This process takes about two to four weeks. To keep the area warm enough to incubate the mycelium (ideally room temperature), a seedling heat mat can be used under the jars to stabilize the temperature. A heat mat controller can help with controlling the temperature. If the area gets too hot or cold, the mycelium will not colonize fully.

Tips: Contamination

Contamination can happen during any step of the mushroom growing process. Contaminants are normally dark green, blue, or black in color. Discoloration, bruising, or heavy deposits of spores on mushrooms can be confused for contamination on some mycelium strains, so be sure to double check the strain's growth behavior to see if these symptoms are normal.

Colonization/Fruiting

Mycelium will colonize from the top to the bottom of the jar. Once you see mycelium at the bottom of the jar, wait one week to ensure full colonization. The jars will be fully colonized when the mycelium is thick (as seen in the picture to the right.) From here, you will want to relocate the mycelium to the fruiting chamber by using the mycelium cake method or bulk grow method.

Mycelium cake method:

Remove the jar's lid, place foil on top of the jar, and turn upside down for the "cake" to drop onto the foil. Carefully place the foil with the "cake" on the wet perlite.

Bulk grow method:

Instead of having the entire cake on top of the perlite, you can spoon out the colonized substrate from your jars and mix it with coco coir to make a bulk grow of mushrooms. A bulk grow allows for more surface area to be covered by mycelium in your chamber, thus having more room for primordia to form and create more mushrooms than the cake method. With gloves, mix two parts coco coir with one part mycelium substrate in a clean bowl. Place the mixture into clean storage containers or foil trays and pat it evenly into the trays. Add a 1 cm layer of coco coir on top of the mixture.

Humidity should be greater than 80% at all times during the fruiting period. Mist the fruiting chamber's walls with water daily. The lid of the fruiting chamber can be used as a fan.

Fan the cakes at least twice a day to allow fresh air circulation. Wait for the fruiting chamber to do its job and you should see baby mushrooms begin to appear and grow. Once you see the mushrooms' caps open, their skirt drop, and their gills are visible, they are ready to harvest.

Harvesting

Pick all the matured mushroom clusters without pulling out too much of the mycelium or substrate. Remove any debris left on the mushrooms. You can try for a second harvest by letting the empty cakes sit for a few days. Let them soak in clean water for 12-24 hours then remove and drain. Place back into the perlite and wait for the second batch of mushrooms to pop up. You will most likely have less mushrooms yield than you had initially. Keep watching for any contamination as it is more likely at this point to occur.

Drying

Once harvested, leave your mushrooms to dry on a rack in a warm, dry area until they can snap easily (a.k.a. "cracker" dry.) If you are using this method, the mushrooms should be completely dry in about three days. You can also use a dehydrator for a quicker drying time.

Storing

Store your dried mushrooms in an extremely air-tight jar or bag with a desiccant in a cool, dark place. You want to make sure to store mushrooms properly to prevent mold and other pest issues from happening.