



Mushroom Growing Primer

Biogen Ag Systems

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Welcome to the World of Mushroom Growing

- Chad Schofield
 - **President of BioGen Ag Systems**
 - **Rancher**
 - **Mushroom Grower**
- Biogen Ag Systems
 - **We build Hydroponic Growing Systems for;**
 - Farmers
 - Ranchers
 - Organizations
- Our systems are generally mobile, easy to operate and cost effective.

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BioGen Ag Systems



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Mushrooms

- What is a Mushroom
- Parts of a Mushroom
- Stages of Growth
- Types of Mushrooms
- Mushroom Blocks
- Environment
- Harvesting



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What is a Mushroom?

A mushroom is the fleshy, spore-bearing fruiting body of a fungus. The word "mushroom" is most often applied to those fungi that have a stem, a cap, and gills on the underside of the cap.

Spore – Baby mushroom looking for a home.

Fungus - Any of a group of spore-producing organisms feeding on organic matter, including molds, yeast, mushrooms.



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Parts of a Mushroom

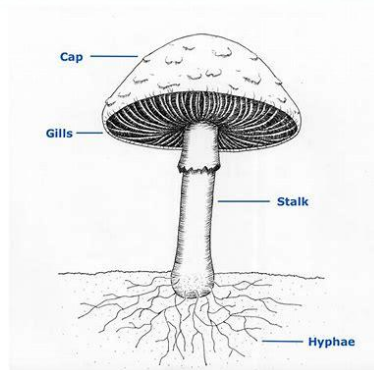
Cap - A fungal growth that typically takes the form of a domed cap on a stalk, with gills on the underside.

Gills - The thin, papery structures that hang vertically under the cap.

Stalk - The stem or main axis of the mushroom.

Hyphae - Each of the branching filaments that make up the mycelium of a fungus.

Mycelium - The primary "plant" portion of the mushroom. Mycelium consists of thousands of delicate, interwoven filaments, just one cell-wall thick, with highly active cells.

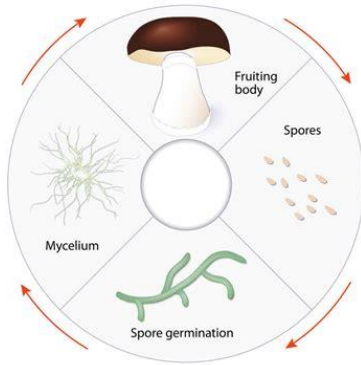


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Stages of Growth

MUSHROOM life cycle



Starting out as asexual spores, fungi grows into hyphae, a mycelial network, a hyphal knot, pinhead, and if the right environmental conditions occur, a mature mushroom fruiting body will form in which the stem and cap are easily recognized by our eyes.



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Types of Mushrooms

Shitake - In Japanese, shiitake means "oak fungus," They're best identified by their umbrella-shaped brown caps.

King - A large member of the oyster mushroom family with a meaty texture and rich flavor.

Oyster - Like their namesakes, they're fan-shaped, and possess a delicate odor and flavor.

Lions Mane - Mushroom belonging to the tooth fungus group. Native to North America, Europe and Asia



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Mushroom Blocks

A mushroom block is a medium whereby mushroom mycelium can anchor and grow. It takes the place of a tree or log in the forest.

It consists of wood pellets, a feed source like soy hulls, and water.

To make a block, you mix the ingredients together and place it into bags. The bags are then heated up to 250 degrees, thus killing everything in the bag, creating a fresh, clean environment for the mycelium which is then introduced, (inoculation), into the bag and then the waiting starts.



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Environment

Humidity – Mushrooms need moist warm areas to grow. They do not utilize direct water like rain, instead they convert humid air into moisture. Therefore, humidity levels will be between 87% - 95%.

HVAC – Temperature will be between 60-67 degrees. Some mushrooms will like it warmer. You will need to consult with experts before changing the environment.

CO2 – Regular air rotation required. CO2 will gather along the base of the grow area first. Regular air changes are required to maintain a healthy environment for you and the mushrooms.

Cleaning – Extremely important! Half the time in the grow room should be spent on cleaning. Use of natural cleaning products and water, wipe every surface you can see and not see, top to bottom.



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Harvesting

- ✓ When your mushrooms are ready to harvest, you should **pick them by hand**. Doing so will reduce the potential for damaging them. Mushrooms can be harvested by being pulled upwards from their base while performing a twisting motion in a counter-clockwise direction.
- ✓ Sometimes a small knife can be used with care.
- ✓ Mushrooms are fragile. Always use care.
- ✓ Mushrooms are packed in cardboard boxes and covered with wax or butcher paper.



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Thank you!

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