

Instructions for
Organic Shiitake - *Lentinula edodes* - indoor spawn bag
(level 1 – beginner)

For successful growth, mushrooms need suitable temperatures, relatively high air humidity levels, oxygen, as well as a little light. One mycelium bag (about 3.3 kilograms of substrate) can produce up to 1.5 kg of fresh mushrooms in 3 to 5 flushes. The fruiting cycle is described here. Please note that, working with organisms, time designations may vary – checking daily on your mushrooms, especially the temperature and humidity levels, is of the greatest importance.

You are provided with a fully colonised mycelium bag. These instructions will guide you through the necessary working steps from delivery to harvesting of your own fresh mushrooms.

Phase 1: Preparation of the grow kit

Working very clean is imperative when cultivating mushrooms. Spring-clean hands, workspace and the growkit. For growing Shiitake from wood blocks as described here, the use of Perlite is not necessary.

TIP: Because chlorine attacks both bacteria and mold, a sodium-hypochlorite-based household-detergent that leaves no traces of chemicals on surfaces works best for cleaning of the working area and of the growkit (NOT of your hands!). Please do refer to product informations. Prepare a water-chlorine-solution (only a small amount of the chlorine-containing product will do) in your household-spray bottle using clean water. Just spray the inside of your grow kit and wait until the sharp smell of chlorine has disappeared.

Place the growkit in a room with no air draft (but WITH fresh air supply) that has the right temperature for the strain you obtained and wish to cultivate (for Shiitake between 18 and 21 °C). Do not place in direct sunlight.

Phase 2: arranging of the mycelia and establishing initiation conditions

Initiation temperatures for this strain range from **10 - 16 °C**, at very high air humidity levels (**95 - 100%**); those for fruitbody development between **13 und 18 °C**, again at relatively high humidity (**90 - 95%**).

Place your mycelium bags in the growkit, leaving enough space between them, but leave all the bags closed for now. Put back on the transparent cover. The growkit cover needs to be sprayed on the inside with clean (drinking) water 2 to 3 times a day to maintain high humidity.

Factbox: optimum conditions in professional cultivation facilities:

| | |
|------------------------------------|-------------------------------------|
| Temperature: 16 - 21 °C | Air humidity: 95 - 100% Rh |
| Duration: 4 - 6 days | CO2: <1000 ppm |
| Fresh air exchange: 4 - 7 per hour | Light: 600 - 2000 Lux / 370 - 420nm |

Phase 3: Removing of the plastic filterbags and fruiting phase

As soon as the first primordia (also called ‚pinheads‘ = tiny little mushroom-look-alikes) start showing on the blocks, oxygen influx should be established and humidity levels should be - slightly - decreased. So now the plastic filterbags shall be carefully removed from the substrate blocks and the blocks be placed on a clean base (e.g. a cleaned metal lid of some bottling jar). Any loose mycelium ‚dangling‘ from the blocks should be carefully removed. Especially on the bottom of the substrate block, you may discover many pinheads - in this case place the blocks upside down in the kit. From now on, in order to increase oxygen influx, keep open one of the cover's hatches just a bit.

Phase 4: Fruiting and harvest

Within 4 to 10 days the mushrooms will mature, but not all at the same rate, so you should check your Shiitake 2 - 3 times a day to get the optimum in quality and yield. Cut as close as possible to the substrate block when harvesting; remaining parts of stalks should be carefully removed, because these are most vulnerable to midges, bacteria and/or mold.

Factbox: optimum conditions in professional cultivation facilities:

| | |
|--|--------------------------------------|
| Temperature: 21 – 24 °C (>27 °C will lead to minor quality) | CO2: <1000 ppm |
| Air humidity: 1st flush: about 90% Rh; all following flushes: after soaking between 68 and 85%, fluctuating several times a day (for mold prevention!) | Fresh air exchange: 4 - 8x per hour |
| Duration: 5 - 8 days | Light: 600 - 2000 Lux at 370 - 420nm |

Phase 5: Resting phase (to be entered directly after end of flush!)

After having harvested all the fruitbodies from the substrates, store the blocks (outside the growkit) in a dry place (30% to max. 50% air humidity) with suitable temperatures (21 °C min.) and let them dry out completely (should take about 7 to 10 days).

Phase 6: Watering

After these 7 to 10 days of resting the mycelia are soaked in clean, cold water in a tub overnight. During soaking the blocks MUST stay underwater completely for best results, so you will have to put something atop the blocks (not too heavy; a water-filled cooking dish or some wire frame/grid), as well as to refill soaked up water in time.

Phase 7: Preparation for 2nd flush

After 6 to 12 hours of soaking, take the blocks out of the water tub and let them drip off well. Then put the substrates back into the growkit, again on a clean base. The transparent cover's hatches now should be kept open for about 2cm each, to provide the Shiitake with sufficient oxygen, which is very important at this stage to avoid mold infestation.

From now on, procedures are the same as described from **Phase 4** and may be redone up to 5 times. Under optimum conditions the blocks will produce fruitbodies until the fungus has consumed up all nutrients in the substrate.

Storage of fresh mushrooms:

Fresh Shiitake can be stored at good quality in the fridge (+4 °C) for about 10 days. For extended storage, drying down, deep-freezing or preserving/jarring are further options.

For drying the mushrooms are sliced 5mm strong and layed out in a dry and well-ventilated place. Hot-air-dryers are convenient tools, but make sure you do not operate above 40 °C, because many of the valuable ingredients may be lost.

Slicing up the mushrooms is also recommended for deep-freezing; frozen fungi are put directly into the hot pan.



Recycling of the substrates:

After the last flush the mycelium blocks are organic 'waste'. Recycle plastic bags according to the prescriptions in your area. The blocks can be piled up for composting as well, if you happen to have a garden or green space. In that case, while the substrates are decomposed by microorganisms, and with a little luck, in the upcoming warm periods you may even have a few of your own outdoor-Shiitake growing from your pile.