

Growing MushroomBox™ King Oyster Mushrooms.

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The MushroomBox strain of King Oyster Mushrooms is a fast-growing strain which will rapidly colonise the substrate. Because of this, it is not necessary to sterilise the substrate – pasteurisation is adequate.

Stages of King Oyster Growth

- 1) Pasteurisation of the Substrate
- 2) Spawning the Substrate
- 3) Spawn 'run' (where the mushroom mycelium grows through the compost)
- 4) Fruiting (The mushrooms fruit in flushes, and up to 6 flushes are possible).

Pasteurisation

The substrate can be any of a variety of materials. Chopped straw or hardwood sawdust are two popular choices, but King Oysters will grow on many other substrates – so experiment! King oysters will grow from substrates containing a percentage of softwood sawdust, although high percentage of softwood is likely to be unsuccessful. Some growers add a small amount (2%) of gypsum (ie plaster) and calcium carbonate (gardeners' lime) to the substrate to produce higher yields.

Weigh out a suitable amount of substrate. For King Oysters, you can spawn at 2% - so 60g of spawn can be used with up to 700g of dry substrate (around 3kg once wet). For beginners, better results are usually obtained when using higher spawn rates (3-5%), as the higher concentration of mushroom spawn out-competes competitor organisms more easily. Place the dry, mixed substrate into the growing vessel (bag or tub), and pour on boiling water, until the substrate is completely submerged in the hot water. Leave for 1-2 hours, then drain away any excess water. Make sure all the excess water is drained away. Small quantities of excess water will water-log lower regions and provide a mechanism for competitive contaminants to take hold.

Cooling and Spawning.

After the excess water has been drained away, leave the substrate (fully covered to isolate against infection from airborne contaminants) for 5-8 hours until it is fully cooled to room temperature. Ensure you do not rush this stage – premature inoculation, whilst the substrate is still warm (over 35C) is the easiest way to kill your mushroom spawn, which will obviously produce an unsuccessful outcome. Remember that even if the outside of the compost feels cool, the inside may well be 40-50C. If the spawn is added to the compost when the temperature is above 30C, it will be killed, so make absolutely sure (leave overnight if necessary) that it is cooled to ambient temperature.

A variety of growing containers may be used. The best is a proper breathable-filter mycology bag, which may be obtained from MushroomBox, but with ingenuity, all sorts of containers may be used. Ensure that there is adequate ventilation for the exchange of CO₂ and O₂ (make a hole in the container and seal the hole with micropore tape to make a semi-permeable filter which will keep bacteria out of the growing environment). The container needs to be thoroughly cleaned

beforehand, with soap and water, and the soap thoroughly rinsed off before use.

Ideally, the substrate should be 150mm to 300mm deep. Add the spawn to the compost - so 60g of MushroomBox™ Spawn will seed up to 0.7kg of DRY Substrate (around 3kg of wet substrate). Once the substrate temperature has fallen below 30C, crumble the spawn into small pieces (ideally, do this before opening the pack by squeezing the pack between your fingers to separate the grains), then mix the spawn throughout the spawn. Higher spawn rates (3%) guarantee faster growth and less opportunity for infection by competing microorganisms.

Next, you need to create a high-CO2 environment for the mushrooms to grow. This is done by covering or enclosing the substrate in polythene – either loosely tied or with holes to allow passage of CO2 and O2. This encourages the spawn to run through the substrate. Place this somewhere dark and at warm room temperature (20-26C) BUT NOT ABOVE 30C!! After a few days, you will see thread-like growths coming from the grains of spawn, and after several more, the substrate will start to turn white. This is the mushroom spawn growing. Eventually the substrate will be almost completely white, indicating that it is fully colonised. Depending on temperature, substrate and general conditions, this will normally take around 10-25 days.

Fruiting

Once the substrate is fully colonised, you need to move it to a location that is airy, well-lit (eg near a window) and slightly cooler (18-22C). You will also need to increase the aeration, by placing the substrate in a more ventilated area, if necessary, manually fanning twice a day. If the spawn run was carried out in a filtered bag, now is the time to make slits in the bag to encourage mushroom formation. King oysters may grow from the top, bottom or sides of the substrate, although they will mostly grow close to a slit or opening, where oxygen concentration is higher. For classic 'market' style king oysters, grow from the top only, whereas growing king oysters from the sides of the container will result in a typical oyster shape.

During the primordia stage (when baby mushrooms form), the air should be kept very damp – near 100% humidity. This is very important, as king oysters readily abort if moisture levels are too low. Alternatively, some growers prefer to use a casing layer (eg vermiculite, moss peat or garden compost – NB pasteurise before use). This ensures that the primordia are in high humidity environment. Once the mushrooms are large enough for picking, you can harvest them for immediate use, or dry them, either whole or sliced for future use. Pick the mushrooms before the outer edge of the cap starts to undulate (indicating it has started to drop spores).

King oysters have a very different taste and texture to ordinary oysters. You should get two flushes from most substrates. Occasionally a third flush will develop, although it will be weak and somewhat unreliable. After two flushes, some growers plant their king oyster blocks in the ground, and let nature take care of it until the third flush.

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