

Growing oyster mushrooms and brown stew fungus on straw bales from Nicola Krämer, www.shiitake.de

You need straw bales of approx. 10 kg dry weight, if possible organically grown. The straw must be dry and clean and smell fresh. The best time to inoculate is March to October..

1. Flush the bale thoroughly with water
2. Inoculate the bales with mushroom spawn (1 litre per bale)
3. Put the bales in a shadowy and moist place
4. Harvesting

1. Flush the bale thoroughly with water

The whole of the bale must be wet. Either submerge the bale in water in a suitable container for at least 48 hours (use a rain butt or similar) or water the bale with a watering can for several days, 10 times a day. It is important that the bale is completely moist deeply inside, too. This takes quite a long time because each of the straws is covered with a water-repellent, waxy coating. You can dissolve the waxy coating faster if you use warm water. Correct watering is an important factor to ensure the success of the inoculation with mycelia and the mushroom yield. If the straw inside the bale is too dry then the mushroom spawn will hardly grow or not grow at all. So you should test the straw by pulling a handful of straws out from the middle of the bale, fold them and wring them out like a cloth. If a few drops of water are visible, then the straw is moist enough.

Wait a day after watering and before inoculation to let the excess water drain out. The straw bale can weigh approx. 40-50 kg after watering, so it is helpful if you water the bale fairly close to the final location in the garden.

2. Inoculate the bales with mushroom spawn (1 litre per bale)

Make several holes at least 15 cm deep in the straw using a broom handle and pour or press grain spawn into the holes. The holes should be distributed evenly around the bale. Before you do this, you can break up any lumps in the grain spawn by pressing the still closed bag to make it easier to inoculate. Finally, push straw into the holes to close them again.

Amount of grain spawn required: 1 litre (i.e. approx. 500 g) for one bale of approx. 10 kg dry weight.

Special treatment for oyster mushrooms only:

After inoculation, completely wrap the bale in a plastic sheet or in a large plastic bag. This increases the CO₂ concentration of the air trapped within the bale and improves the growth of the mycelia. To ensure a small amount of air exchange, punch approx. 20 to 30 holes of approx. 5 mm diameter through the plastic sheet, distributed around the bale. The easiest way to do this is with a rake or pitchfork. Do not use dark coloured plastic sheet because this can cause the bale to heat up too much in the sun.

This method is not suitable for brown stew fungus (*Stropharia rugoso-annulata*). It reacts negatively to carbon dioxide. However this mushroom type needs soil contact – the mycelia can grow out of the bottom of the bale into the soil. Accordingly the bales should not be moved again during the maturing phase. It helps to cover bales inoculated with brown stew fungus with an approx. 3 cm layer of good soil from the garden directly after inoculation.

3. Put the bales in a shadowy and moist place

For all mushroom types is best to put the bale in a shadowy moist corner of the garden which is protected from wind. The bales should have contact with the soil (do not place on concrete). A greenhouse or cold frame is also suitable, but you should prevent the bale from getting too hot. The mycelia starts to grow at a temperature above 10° C, the best temperature is around 25° C. Depending on temperature, the mycelia grows throughout the straw in approx. 6 to 16 weeks. No attention is needed during this time. Solely in the height of the summer during long hot, dry periods, a sub-optimal shadowy location and bales which are not wrapped in plastic, several litres of water should be poured over the bale once a day. But be careful: a very common reason for a failed harvest is too much water. This can kill the mycelia. Accordingly the bale should be protected from heavy rain.

Bales packed in plastic sheet do not need any extra water in the maturing phase - the moisture from the initial watering is normally sufficient. If you inoculate during the autumn in the garden, you should cover the bales with straw or leaves during periods of heavy frost.

If you want to check how well the mycelia has grown into the straw, you can take a handful of straw from within the bale or press the bale slightly apart. The white mesh of mycelia is easy to see. If the mycelia has spread throughout a large part of the bale, the first mushrooms will surely come soon. You can now remove the plastic sheet.

The brown stew fungus tends to grow somewhat hidden in the straw. Note: The bale should not be moved again after the maturing phase because otherwise the growth of mycelia in the soil below the bale will be interrupted.

4. Harvesting

During the harvest time which extends to about 3-5 months, mushrooms should appear at variable intervals. Try to ensure that the moisture in the air around the bales remains relatively high by ensuring to a shadowy location and protection from wind. Take care not to water too much because this can cause damage.

Because theoretically other mushroom types could grow, check that the mushrooms are the correct, edible variety that you want to grow. You can compare the appearance with the photos of the mushrooms on our website. Note: Young mushrooms can have a slightly different colour to mature mushrooms.

If so-called weed mushrooms such as *Coprinellus bisporus* or *Peziza vesiculosa* start to grow, this shows that the bale is too wet. They are not edible and should be removed. Their appearance is very different to oyster mushrooms or brown stew fungus and they are much smaller. However, the bale is not permanently damaged by this, it only needs to dry out a bit.

One of the problems is slugs. Unfortunately they love mushrooms. You can protect the bale for example using the slide fences which we also sell. Woodlice could also be a problem but do not damage the mushrooms very much. Ants are not a problem.

After harvesting for 3-5 months, the bales shrink and collapse and no more mushrooms appear. What is left over is an excellent compost.

If you don't want to inoculate with straw bales, which are a bit heavy, good alternatives are our kits for Oyster mushrooms + straw pellets or growing brown stew fungus on chopped straw. It is easy to judge the right quantities with these methods and they don't take up much space.