



ROOTLAB

Mycology made easy

Version 1.2

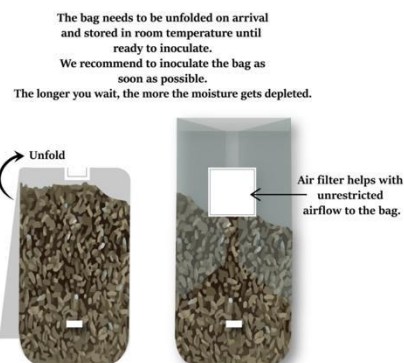
Congratulations on your purchase of a Rootlab grain bag. If you are a beginner or are not sure how to use this product, please read the detailed information sheet below.

Firstly, it is important to check the bag you received for any damage and contamination that may have occurred during shipping due to extreme heat/cold temperatures, excessive handling or exposure to the sun.

If your bag is bubble-wrapped, remove the packaging to check for breakage or contamination. Contamination can be a variety of colours, but the most common are green or grey. Please notify us immediately if you suspect your product is contaminated, including clear photographs.

Your bag has been carefully packed and sent express to make sure your product reaches you quickly and in perfect condition.

Storage prior to inoculation:



Remove the bags out from their packaging as soon as possible, unfold them and store, unfolded, in a well-ventilated space (dark or light).

This allows the grains access to fresh air through the air vent filter, preventing anaerobic conditions that result in mould or bacteria thriving inside the bag. If the air vent filter is stuck or pressed against the plastic, loosen it so that the grains can access fresh air.

FAQs:

Q. Why do my grains look completely dry?

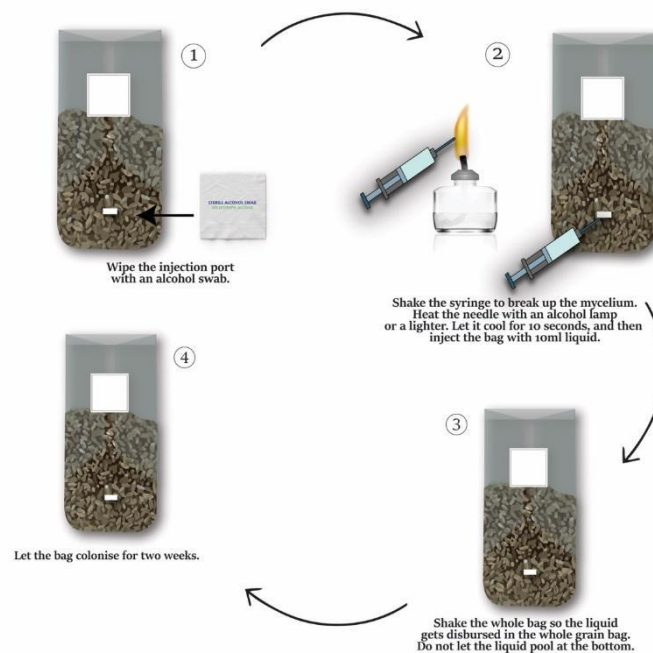
- A. The grains are at a perfect 55-60 % humidity. During sterilisation, we add gypsum to the grains to ensure that they do not stick to each other. Loose grains create more surface evaporation, hence the grains look very dry from the outside, but are plump and soft on the inside. This assures a completely sterile space for the mycelium to grow in. In addition, moist grains will create a humid environment during shipping, leading to more chances of contamination.

Q Why do my Grains look wet?

- A. The best way to deal with excess moisture is to shake the grains really well on arrival so that the moisture is evenly spread through the bag. You could inoculate the bag after shaking and re-shake after inoculation.

1. Inoculation (introducing the mycelium to the nutrient medium):

Steps of Inoculation



- We recommend that the bags are used as soon as possible to minimise the chances of contamination.
- Work in front of a flow hood or a still air box using a completely sterile workspace.
- **It is very important that you sanitise the injection port by wiping with an alcohol swab or by spraying alcohol and giving your syringe a shake to break up spore or mycelium.**
- Flame the needle until red, let it cool, and then inject the bag with 5 ml Liquid for 500gms bag or 10 ml liquid culture for 1 Kg bag or a completely sterile spore syringe.
- Once inoculated, give the bag a good shake. A reshake may be necessary if the liquid pools at the bottom of the bag.

Q. What should I inoculate the bag with?

- A. Liquid culture is recommended to reduce the risk of contamination, as it colonises the mycelium at least a week faster than a spore syringe.

If a spore syringe is used instead, ensure that it is checked for contamination using an agar dish. Put a drop from the syringe in an agar plate and wait for five days. If contamination starts to grow (green, red, blue, dark brown, or black or yellow slime mould), it means that the spore syringe is not sterile.

Any colour other than white indicates contamination (in most cases).

It is imperative that you test the culture in an agar plate before inoculating your bags with it.

Q. How much liquid culture do I add?

- A. Thinking of hastening growth by inserting the whole syringe into the bag? Think again. Excess moisture/water will sit at the bottom of the bag and create a microclimate in which bacteria thrive. The sweet spot is around 10 ml/kg.

2. Colonisation (mycelium growth – no mushrooms present):

- Incubate at approximately 24°C in a dark spot, keeping the grain bags separate from each other to avoid contamination caused by excess heat.
- Agitate bags with clean hands when 50% colonised. Do not touch the air filter or allow it to get wet. Return bags to the dark until fully colonised.
- **Do not place the bag on a heat mat to keep it warm as this will cause all moisture in the bag to evaporate, and mycelium will die.**
- **Prioritise airflow over a dark spot. Darkness is a secondary factor. Airflow is the most important factor. Cupboards usually have restricted airflow.**
- It is more difficult to colonise bags in winter than in summer. If the temperature falls below 24°C, mycelium takes longer. Sometimes if they take too long, the moisture in the bags gets depleted and the mycelium dies. This is why optimum temperature and airflow is so important for colonisation.
- Do not obstruct the air filter or fold the bag. Folding the bag will result in the air filter getting obstructed and mycelium dying due to suffocation or excess CO₂ buildup in the bag.
- Colonisation time will vary depending on the species. Oysters and Reishi are fast colonisers; other species can take some time.
- You can hasten the colonisation of mycelium by keeping it in the dark place at approximately 24°C and with plenty of airflow. Nothing else will speed up your colonisation.

FAQs

Q. It's been one week, and nothing is happening?

- A. Do not worry! Spore syringes can take one week just to germinate. After germination, they find the right compatible strain to mate before they start their process of colonising. Liquid culture is fairly quick but can still take 1-2 weeks in the right conditions. If the temperature is below 24°C, the time increases. It is best to leave them to do their thing and don't touch the bags. Bags can take anywhere from 10 - 35 days to fully colonise.

Q. How do I know if my bag is fully colonised?

- A. The bag will be completely white once colonised. It is a good idea to take note of what the average storage temperature was and how long colonisation took for future reference.

If a fully colonised bag is not used within two weeks, the vigour of mycelium starts to diminish from day 14, and the mycelium slowly starts to die off. Therefore it is important that you add them to your substrate and start growing them as soon as possible.

As the grains age a yellow liquid will be produced. This is called mushroom pee and it is a sign that the mycelium is stressed or old. These natural metabolites will not harm your produce but it is a signal that the mycelium is no longer at its optimum health and could be susceptible to contamination.

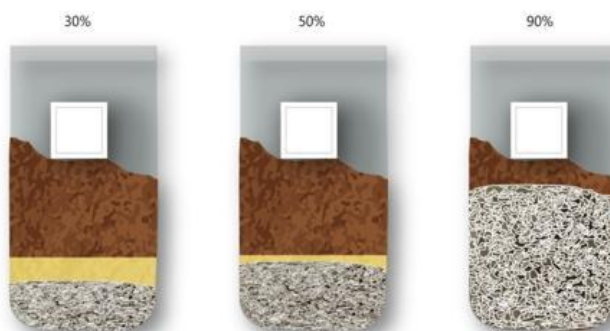
If you can't use your grain spawn once it has fully colonised, store them in the fridge between 4-6 °C. This will slow their metabolism and help to keep them fresh for longer.

Q. Do I shake the bag?

- A. It is recommended to leave the bag to colonise at least 30% and then give a good shake with clean hands and without touching the air filter. Leave the grains to colonise further. Repeat at 50% and 90% colonisation.

Shaking weakens the mycelium. It takes approximately 1-2 days to return to health, so avoid excess shaking and give your mycelium a chance to grow without being interfered with.

Shake bags at these stages of colonisation:



Q. Can't I fruit directly from the grains without transferring it to substrate?

- A. Mushrooms need a multitude of nutrients that grains alone can't suffice. The natural food for mushroom is wood or dung, not grains.

Q. What role does grain play in mushroom cultivation? Why do we grow mushrooms in sterilised grains?

- A. Grains are highly nutritious and give mycelium a head start. Grains are always sterilised in an autoclave for at least 3 hours at 15-20 psi. After that, we inoculate it with Mycelium and give it a completely sterile condition to grow without any competition. Once they have colonised, they can be put on a pasteurised (less sterile) substrate. Grains have a lot of inoculation points. Small granules will mix with your substrate from every direction and start colonising the substrate in less than two weeks. This makes sure the substrate is fully colonised in as little time as possible and mycelium has developed its immune system to ward off any other contamination.

Summary of steps in glance:

- Take the bag out of any packaging or bubble wrap.
- Inspect the bag and air vent filter for contamination.
- Keep your bag in a well-ventilated space and use it as soon as possible.
- Carefully follow the procedure above to inoculate and fruit once fully colonised.

FAQs

Q. What do I do if I suspect contamination?

- A. Many people, including us, have experienced contaminated bags as beginners. It's important to take detailed notes and to find the vector of the contamination to avoid reoccurrence in the future.

If contamination appears to originate at the site of inoculation, it is likely that the syringe was contaminated or that proper sterilisation procedures were not maintained. Wrap the contaminated bag in a plastic bag and dispose of it in the general waste bin. Sanitise your workplace and yourself thoroughly.

This product is susceptible to moisture and temperature fluctuations and is considered perishable. Correct handling and product knowledge is essential.

If you need further assistance, contact us at info@rootlab.com.au with photographs and the process you followed.

Q. What are common mistakes to avoid:

- Adding liquid culture or spores more than necessary. 5/10 ml is sufficient for 500g/1kg respectively.
- Using an unchecked spore syringe (i.e., not tested in agar).
- Unsterile workspace, needle or hands.
- Not allowing the needle to cool down after sterilisation and before inserting it into the injection port leads to damage to the bag and increases the risk of contamination.

- Shaking the bag too often.
- Not labelling the bag with the variety you are growing.
- Not cleaning the injection port before inoculating with an alcohol swab.
- Delayed inoculation of the bag.
- Selecting storage area based on light levels (e.g. a dark wardrobe) over adequate airflow.

Q. How do I use the colonised grains?

- A. When using the colonised grains for growing, make sure the species you are trying to grow is in the right temperature and substrate.

Different species of mushrooms like either Compost/Manure/Wood/Insects etc. It is important you use the right substrate with the colonised grain bags.

For further information and questions, please do not hesitate to contact us at info@rootlab.com.au.

We are open to all feedback and suggestions from our customers.