



Mushroom spawn: Definition: the mycelium, or primary filamentous growth, of the mushroom; also cakes of earth and manure containing this growth, which are used for propagation of the mushroom.

The Life Cycle of a Cultivated Mushroom:

First, one must grow the spawn of the mycelium. Grain such as rye is often used for this task. While the spawn is starting to grow, composting of the manure takes place. Components such as manure, straw, chicken droppings, and/or turkey droppings can all be added to the mixture (but not acidic pine needles). Once this compost reaches the proper temperature, mushroom growers will add the spawn to the nutrient-rich compost.

In turn, the mycelium will run all throughout the compost eagerly digesting the organic material. In order to coerce the fungus into creating mushrooms, a low-nutrient casing is placed on top of the compost. Thinking it is about to run out of food, the fungus will produce fruiting bodies (mushrooms) to disperse spores. When just the right time has come, harvesters will come along and cut the mushrooms away from the mycelium.

What you need:

- 7 Qt. pressure cooker
- Large pot for boiling water (5-7 Qt.)
- 7 ? 1 Qt. sized canning jars (w/lids)
- 1 cup measuring device
- 1 cup liquid measuring device
- Industrial-grade masking tape (not shown in pic)
- 2 lbs or more of rye grain (rye berries)
- 1 gallon of spring, distilled, or drinking water

The first item of consideration when working with grain is a pressure cooker for sterilization. As far as I know (aside from an autoclave), a pressure cooker is the only way to get the grain hot enough in order for it to become properly sterilized. For this TEK, we will be using a 7 QT. capacity pressure cooker which holds 7 - 1 Qt. sized canning jars.



The type of grain that we will be using is known as rye grain and is the most commonly used type amongst commercial grow-ops for creating spawn used with bulk substrates and edible mushrooms. For small-scale apps, grain can be used as a primary substrate or can be used to spawn more prepared grain (which allows one to extend a live culture or spawn to create more substrate mass to fruit from). And, as with the commercial application of grain, it can also be used to spawn bulk substrates like compost or pasteurized wheat straw, etc? to achieve greater yield potential.

Below is a photo of the rye grain that we stock.



Initial Preparation:

Before we begin, it's always a good idea to wash your hands and clean the work space that you will be working in before you get started. However, for this procedure it's not nearly as crucial as some of the other procedures, so being overly cautious is not necessary at this point.

What is important for this procedure is to be sure that the jars that you are using are clean. If your jars are new, then it's a good idea to give them a simple washing and drying before carrying on. If your jars are used, then make sure that you get all the visible build-up eliminated and then clean them in a 10% bleach solution and rinse clean. If you don't have bleach, then you can spray lysol directly into the jar to clean it and then rinse it clean. You may want to give them a final cleaning with an alcohol-saturated paper towel to be safe.

Once your jars are cleaned, then you will need to modify the lid so that you will be able to inoculate them with a syringe needle, without having to remove the lid entirely. To do this, we will need to drill, cut, punch, or melt a hole into the center of the lid.



A 3/16" hole would be the ideal minimum diameter to use for this app, while a 1/4" hole would be about as large as you would ever need. I prefer a 3/16" hole as it provides plenty of room for me to get the tip in and out without much effort.

Once you have modified all your lids to accommodate the syringe inoculation, then you can wash the lids clean and move onto the procedure.

Procedure:

Place the following items in your workspace:

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Put the grains in a pot with water (1:1.5 ratio) and pressure cook for 1 hour. First, scoop 1



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After the bottle has dried, use a measuring cup (must be a liquid measuring cup!), pour 2/3-3/4 cup



Add the water to the jar of grain:

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Now, add the lid to the jar and tighten it:

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Add a piece of industrial grade masking tape over the hole (I am using hi-temp foil tape):



And shake until the water is mixed with the grain:

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Hand filling jar with grain substrate. Jar #1 is grain only, Jar #2 is grain and water.



Two jars of grain substrate. Jar #1 is grain only, Jar #2 is grain and water.

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pressure cooker. Add to the jar some of the water from the pot and add it to the



Once the water has boiled for 5-10 minutes, it's ready to add to the pressure cooker:

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Now, secure the lid onto the pressure cooking unit and turn the stove top heat on "High":



After 5 minutes, you should begin to see the steam coming out of the pressure cooker. After 10 minutes, the steam should be blowing pretty steadily.

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15-20 minutes of intense flowing steam); it's time to add the stopper thingy to the lid (total



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The grain has tripled in size and mass by almost 3 times the initial amount. The grains are now ready to be inoculated.