Beginners Guide to Growing!

Feeling dead inside? It's time to grow!

https://deadinsidemyco.com

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*Disclaimer: These instructions are intended for Colorado residents who are of the age of 21+ years old. Please review your State and local laws. We do not condone the illegal cultivation of mushrooms. All research plates and liquid cultures are meant for microscopy purposes outside of Colorado.

Also we ask that if for any reason you had to pay for this product to please email us at sales@deadinsidemyco.com. This is a FREE publication to all!

Congratulations on getting your first kit to dive into the beautiful science of mycology! We will start off with some pointers and tips of things you should do prior to when you want to start with this! If you do not anticipate to start this process immediately you should do the following:

1. Place any liquid cultures or culture plates into the refrigerator. Preferably into a location which is warmer and away from the freezer. The vegetable/fruit drawers are a good location. Try to stay away from any freezing temperatures, this can damage/kill the mycelium if put into freezing temperatures. If you have a wine cooler, this is a great location. Liquid cultures and research plates can be stored up to 6+ months in refrigerated locations, we recommend that you at least try to use some of them prior to this time to ensure healthy growths!

2. Place the substrate and sterilized popcorn jar in the refrigerator as well to help maintain the moisture content. Try to use the sterilized popcorn jar within 30 days of purchase. The longer you wait for the sterilized popcorn increases the chances of lost moisture and decreases chances for healthy mycelium growth.

3. Products you will need to purchase: Two main things you will require that we do not supply is 70% isopropyl alcohol and distilled water. Make sure when you purchase the isopropyl alcohol that you get 70% NOT 90%. Even though you would think the 90% would work better, that is not true. 70% alcohol will take a longer amount of time to evaporate and give more time to kill any bacteria. We recommend distilled water to eliminate any added chemicals for the best chances of growth. We supply the bottles for each item which you will need to supply. A

recommended option that isn't necessary is a hygrometer. These are super inexpensive and will help you monitor the location your mushrooms will be growing. This will help show you your temperature and humidity levels in the specific location you chose.

4. Once you are ready to start your first steps, take your liquid culture/culture plate & sterilized popcorn jar out of the refrigerator. Allow these to come up into room temperature.

5. During the time waiting you need to select a suitable location. We recommend a small enclosed area which can be thoroughly sterilized. We recommend a location such as a bathroom which can clear off counter space and do a THOROUGH Cleaning. Turn off any central air systems for at least 15-20 minutes prior to any next steps. There are millions of spores that are constantly in our world! We want to eliminate any chances of introducing these spores to our inoculation process! If you have a facemask we highly recommend this as well. Liquid cultures have less chances of picking up contaminates VS culture plates. We recommend if using research plates you should do this in a Still Air Box (SAB) . There are tons of great Youtube videos on how to make an inexpensive SAB. Do yourself a favor! Don't purchase one from a company! This is something as simple as taking a 66 QT+ plastic container and cutting holes in to fit your arms! If you do also make a SAB this will also decrease chances of contamination in your mycology work!

2. **Testing liquid culture / multi spore syringes on agar**

A. Now in my opinion this is one of the most vital steps that you should do before you even start this long and extensive journey. This is also something in my opinion can set the majority of the people up for failure!

B. There are so many vendors and options when it comes to finding your LC or MSS or other options to inoculate your grain. Now hopefully you have selected a vendor which is possibly reputable or actually has a policy set in place for replacement policy if that product you purchased does in fact backfire.

C. Personally I do not like dealing with multi spore syringes (MSS) compared to dealing with liquid cultures (LC). Spores in general whether from print, swab, or syringe might require cleaning up on agar. The other thing why I am not a fan of them is if you are using MSS right into inoculation you are looking at longer periods of time waiting for them to create mycelium. I have also seen numerous people have MSS which just did not do anything at all, either on agar or in their inoculated source. Now am I saying that LC's are always going to be cleaner? No, I'd hope so, but that's not the reality. Once again boiling back to the importance of finding the right vendor.

D. So let's really start our first and most important task of these beginning phases of growing our mushrooms. Let's test out our syringe to ensure we have a product that is worth pushing forward with!

E. So the first little step is getting our sterile environment setup to test our syringe on agar. If you are working outside of a still airbox, make sure that you have all circulating air flow inside your residence turned off for about 15-20 minutes prior. Preferably work in a smaller more sterile environment such as a bathroom. Make sure you wash up your hands thoroughly, glove up if you have them. Spray your hands down and your working surface with 70% isopropyl alcohol.

F. Grip the syringe between your ring and middle fingers. Take your index and thumb and grip the plunger (Sec. 2 Fig. 1). Now give this a nice shake for a few minutes. This is going to help separate the clusters of spores/mycelium. We want

this mixed up as best as possible. At this point you do not need to attach the needle. That will be used later on. Keep it in its sterile packaging.

G. Now prepare your agar dish to test your syringe. Of course best practice is in a still air box, but if that is not accessible you want to hold the syringe in your dominant hand. You will want your fingers and thumbs wrapped around the sides of the syringe, not on the plunger (Fig. 1).

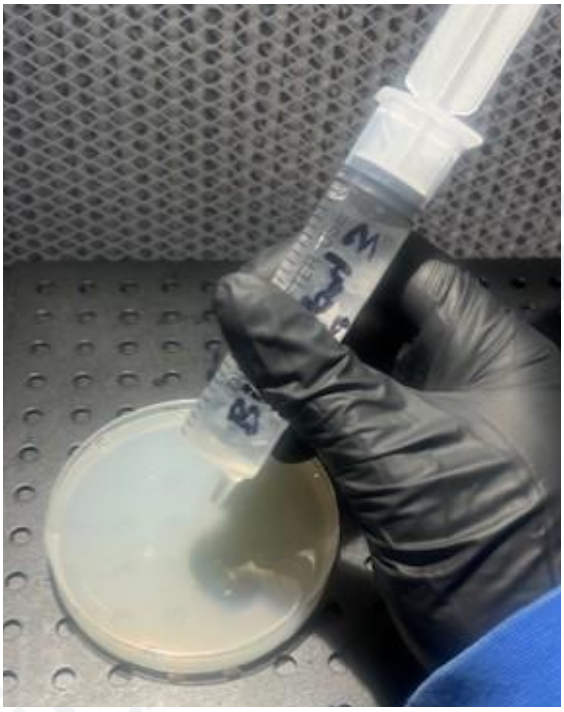


Fig. 1

H. Now swiftly we will carefully remove the luer lock off of the syringe and then the lid off of our agar dish and we will squeeze the side of the syringe. We want about 3 drops or so of our LC/MSS on the center of our dish (Fig. 1A). This is why it's important to squeeze the sides of the syringe and not use the plunger. Most people when they attempt to do this using the plunger they will squirt way too much liquid onto the dish. We only want a few drops. Once you have a few drops on the plate swiftly put the lid back on the dish and luer lock back onto the syringe.

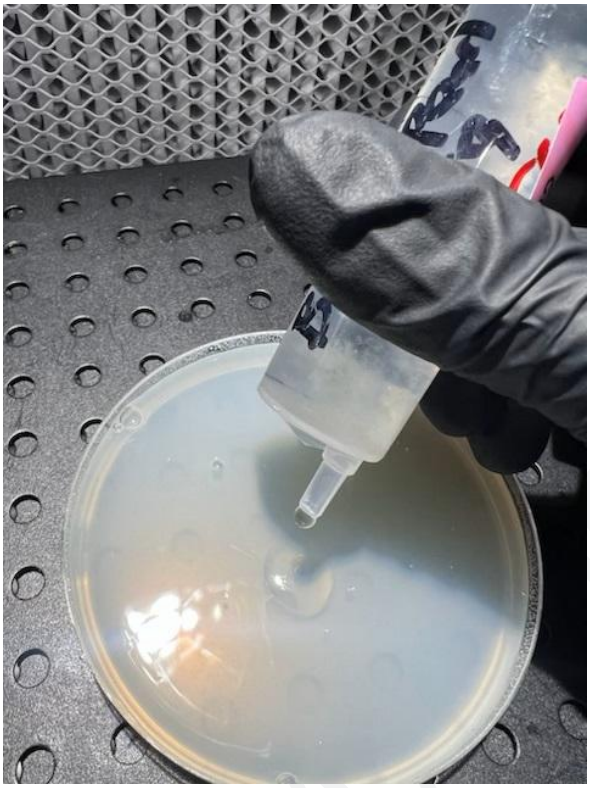


Fig. 1A

I. With the lid back onto the dish, we want this to just sit there for the next 15-20 minutes (Fig. 1B) until we do not see any liquid left on the dish (Fig. 1C). We don't want to move it around to spread the liquid either. Allow it to dry.

J. Now that the liquid has absorbed onto the agar, we need to seal up our dish. If this is something new you can use some cling wrap around the edges or get micropore tape from the store and seal it up. Personally I prefer to use grafting tape. It is very inexpensive and works great in my opinion (Fig. 1D). Take a marker and label your plate so you know which genetic you just tested and throw a date on there as well as a reminder. Place this in a warm location of (72°- 78°F / 22°- 25°C).

Fig. 1B

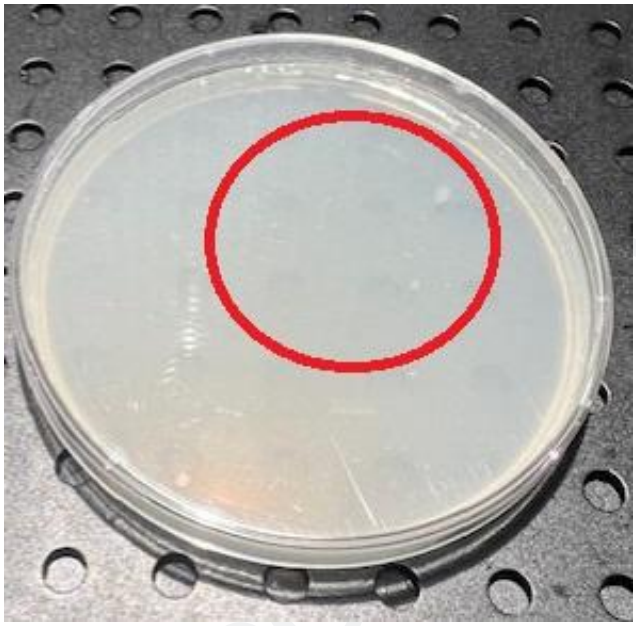


Fig. 1C

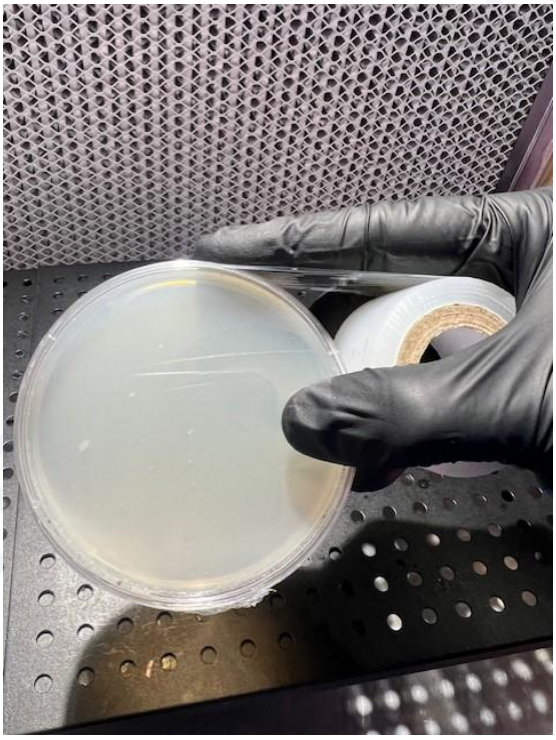


Fig. 1D

K. Here in about a week we should start noticing some growth. Which lets keep our fingers crossed that it's mycelium and not bacterial. Bacteria usually will grow at a faster rate than mycelium does. So if you come back in 2-3 days and notice

some crazy growth it's highly likely contaminated. What we will be looking for is some fuzzy mycelium growth (Fig. 1E). If you hold it up to the light you shouldn't notice any discoloration (Fig. 1F). Still give your dish a while to continue its healthy growth, however once you can see this you will be in the clear.

Fig. 1E

Fig. 1F

L. Now let's look at some examples of some things that can be common to see on agar so we can help you identify if you have contamination.

1. Yeast bacteria. Yeast bacteria will create shiny white/yellowish dots (Fig. 2). Remember we should be noticing fluffy or stringy growth.

2. Bacterial colonies are another very commonly seen growth that can occur on agar. They might have somewhat of a slimy look to them, but one of the signs I have seen is that they grow what look like little "walls" or strange looking growths (Fig. 2A). Some bacterial colonies if found in the LC/MSS might hide dormant underneath the mycelium. Holding it up to the light can help see if there are any hiding underneath (Fig. 2B).

3. Cobweb mold. So this mold can disguise themselves for a little bit against mycelium. However eventually they will change their characteristics which will be the giveaway. Both will eventually attempt to grow vertically, and

can be very wispy/crazy growths (Fig. 2C). In this example you can see that the direction of the mycelium was growing, which it was met from an opposite location of the initial growth pattern.

4. Black pin mold. Now here is one of the scariest plates I have ever experienced. If I remember correctly I had a plate get knocked off while waiting after it was poured. Lost and forgotten until later. You can see how it almost gives a strange looking mycelium appearance, however you can see where it started to turn black. If I would have waited longer it would have turned completely black (Fig. 2D).

5. Trichoderma mold. One of our most common molds we might encounter through all phases of growing. It will start off as very rapid growth that almost looks like mycelium. It will eventually shift its color into that green color (Fig. 2E)

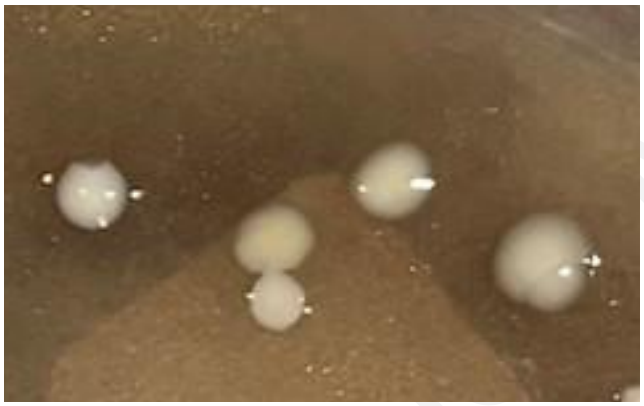


Fig. 2

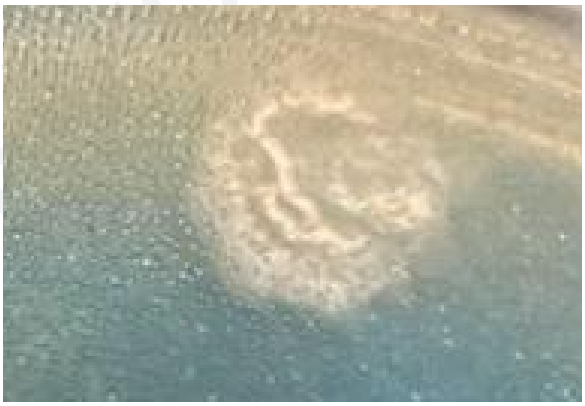


Fig. 2A

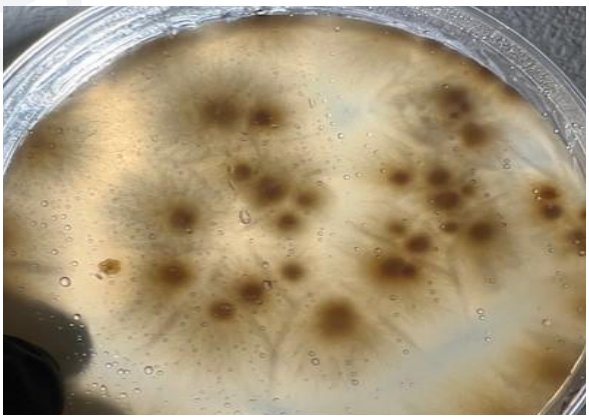


Fig. 2B

Fig. 2C

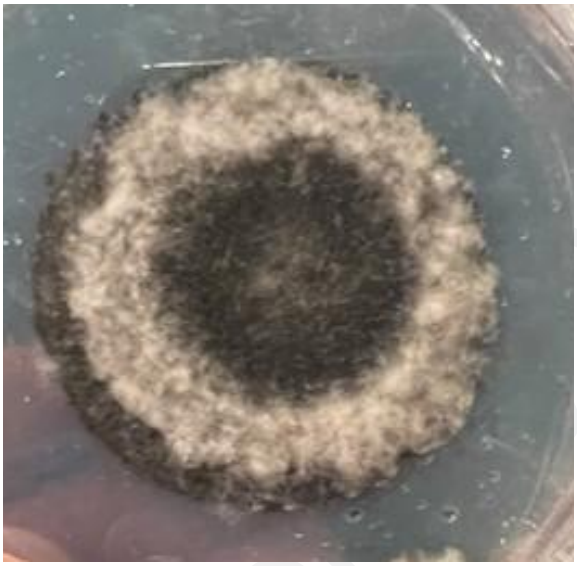


Fig. 2D

Fig. 2E.

M. Now that we know what to be looking for with the good and the bad. Let’s hope that we are looking at some nice and healthy mycelium growth. If so, let's move onto inoculation. If you go through a reputable vendor and you are able to show them that you had tested your LC/MSS most will send you out a replacement. Another reason why to look for such policies.

2. Inoculation: We will be covering the two methods of inoculation. Inoculation using liquid cultures & inoculation using cultures plates.

A. *Inoculation using liquid cultures.*

You will need the following:

1. 10 CC LC syringe W/ 18 gauge needle found in bag.
2. Sterilized popcorn jar.
3. 1 pair of nitrile gloves.
4. Fine mister bottle with 70% isopropyl alcohol.

A. Make sure you have your sterilized location with no central air running for 15-20 minutes prior to starting.

B. Wash your hands thoroughly with soap and water! Put on the nitrile gloves.

C. Take some of your isopropyl alcohol and spray down your working surface and the self injection healing port on your popcorn jar (the gray circle on the lid) allows it to soak and kill any leftover possible bacterias.

D. Take your LC syringe and grip the plunger with your back fingers (Fig. 1). Shake your liquid culture for about 1+ minute. This will allow your liquid culture to be mixed up to allow more even disbursement!

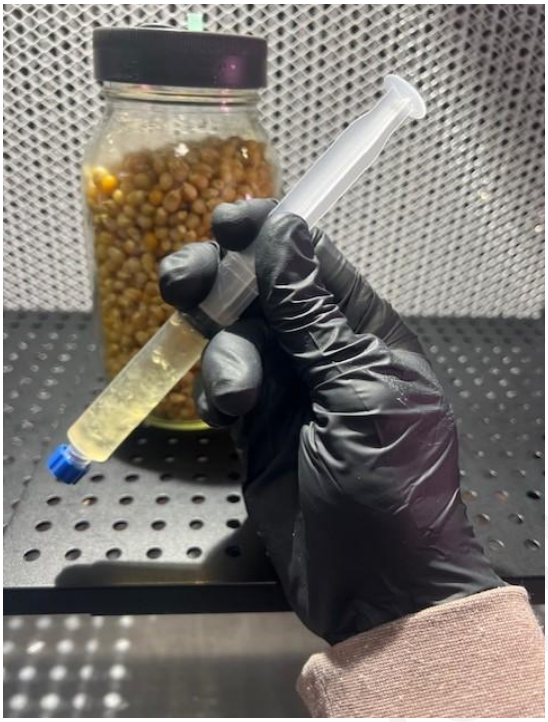


Fig. 1

E. Take your needle and spread the ends of the packaging and place it between your fingers. (Fig. 2 & Fig. 2A).

Fig. 2

Fig. 2A

F. While holding the needle peeled back in one hand, take the other hand and hold the syringe vertically near the needle. Take the luer lock and place it between an open pair of fingers. Thread the cap off, the luer lock and thread the needle onto the syringe (Fig. 3 & Fig. 3A)

Fig. 3

Fig. 3A

G. Look at your syringe you will need to pay attention to the lines of the since you will want to only use a certain amount of your LC based on the size of the popcorn jar that you are inoculating. 1 PT jar will only need about 1 - to no more 2 CC's of LC. 1 QT jar will need about 2 - no more than 3.5CC's of liquid culture. Less is better, have control when you inject. The more LC in the jar can open the chances of contamination.

H. Take your cap off of your needle and insert it into the self healing port. Angle your needle towards the outer rim of the jar (Fig. 4). Inject a small portion of the LC. Rotate the jar about 90 degrees and inject the next small amount. Try to do small squirts at different sections to cover as much of the popcorn as possible (Fig. 4A). Make sure that each time you are paying attention to how much LC total is injected.

Fig. 4

Fig. 4A

I. Make sure you label your jar with what genetics you used and the date you inoculated. Take your jar and place it in a warm and dark environment (72°- 78°F / 22°- 25°C)

B. *Inoculation using culture plates*

You will need the following:

1. Research plate of choice
2. Sterilized popcorn jar
3. 1 pair of nitrile gloves
4. 1 stainless steel scalpel W/ sterile scalpel blade.
5. Fine mister bottle with 70% isopropyl alcohol.
6. A roll of grafting tape (recommended), 3M Micropore tape, or Parafilm.

A. Make sure you have your sterilized location with no central air running for 15-20 minutes prior to starting. Highly recommended do not attempt working with agar without a still air box (SAB) or work in front of a laminar flow hood. Agar is highly susceptible to contamination in uncontrolled environments.

B. Wash your hands thoroughly with soap and water! Put on the nitrile gloves.

C. Take some of your isopropyl alcohol and spray down your working surface and the lid of the sterilized popcorn jar. This allows it to soak and kill any leftover possible bacterias.

D. Prepare your research plate by removing the protective tamper evident seal and the remaining grafting tape from the plate.

E. Get your scalpel prepared by spraying it down with 70% isopropyl alcohol. Get your sterilized packaged scalpel blade ready by splitting the package seals the same as the sterilized needle (Fig. 1). Connect your scalpel and blade (Fig. 1A). Once connected leave the scalpel and blade in the wrapper of the scalpel blade. Rest this in a location that has been previously sanitized (Fig. 1B).

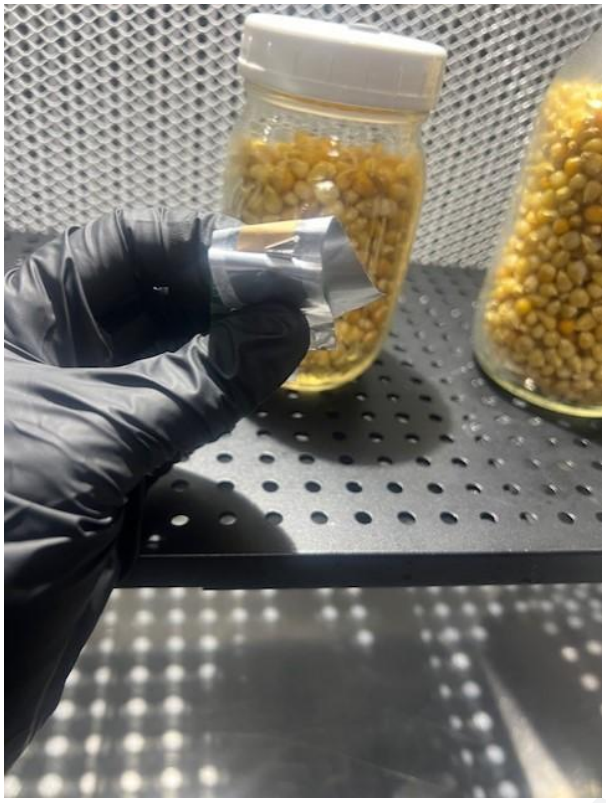


Fig. 1

Fig. 1A

Fig. 1B

F. Once the scalpel, research plate, and popcorn jar are all prepared it's time to cut! Take your research plate and cut it like a pizza (Fig 2) I do 8 cuts total for a 90mm plate. My last cut is one motion around the full outside perimeter of the plate (Fig. 2A). Make sure that when you cut your directions you go to the edge of the petri dish. Last cut you want to take your blade and sweep around the out perimeter of the dish. This will help you with lifting your cuts without having to worry about them resisting and sticking to the plate.

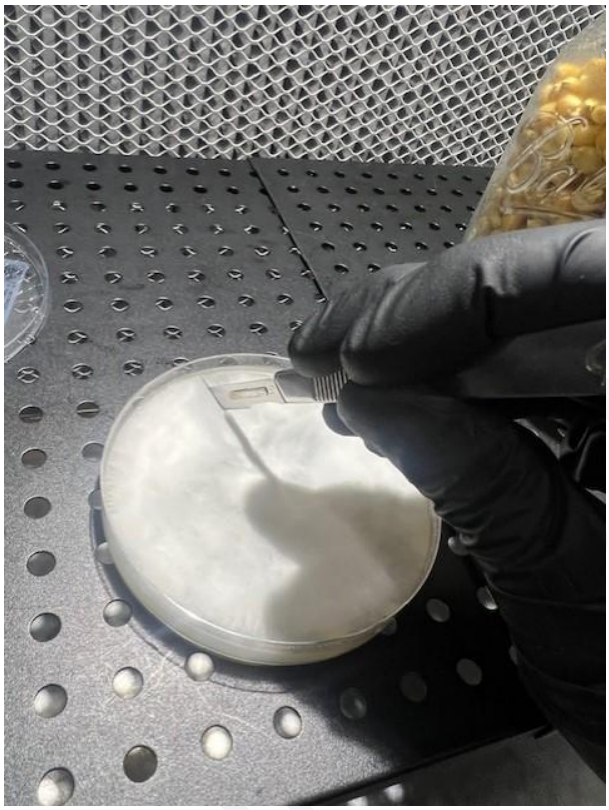


Fig. 2

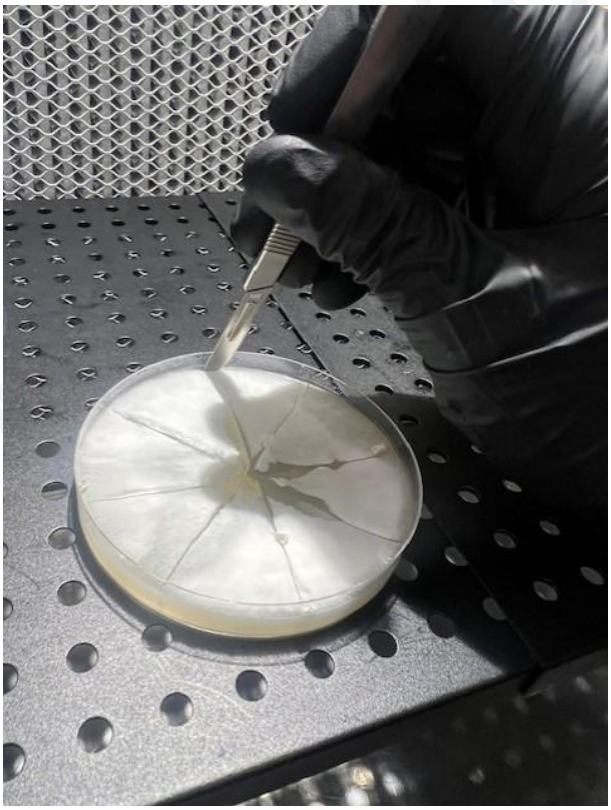


Fig. 2A

G. Now that you have your agar cut into slices it’s time to prep it to go into our grain jar! Take your scalpel and you want to guide it on the outside edge of your petri dish, once centered into your cut push the scalpel carefully into the middle of the cut you took (Fig. 3). Make sure that you have this readily available. Now you will take your popcorn jar with the lid already cracked, angle it so you are able to get your agar cut lower into the jar (Fig. 3A). Place your cut with the mycelium side facing the corn (Fig. 3B) Tip the jar back vertically to allow the corn to capture the slice and to allow the scalpel to exit the slice without moving the agar cut. Repeat these

steps to try to surround the jar with cuts at different levels (one high, one low, etc. Fig. 3C).

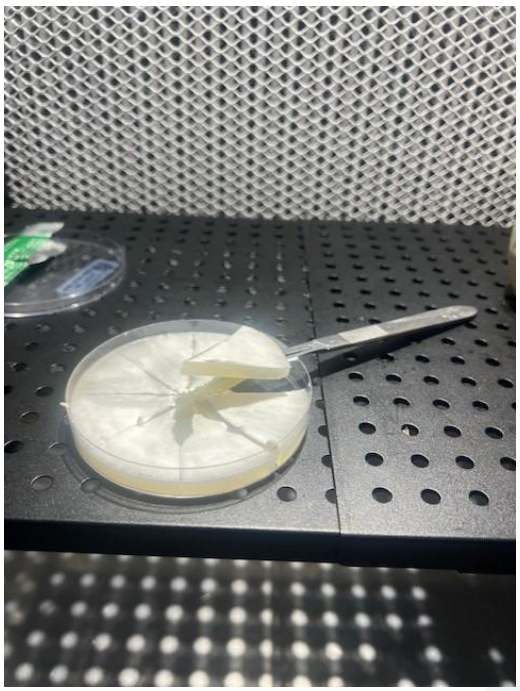


Fig. 3

Fig. 3A

Fig. 3B

Fig. 3C

H. Make sure you label your jar with what genetics you used and the date you inoculated. Take your jar and place it in a warm and dark environment (72°- 78°F / 22°- 25°C)

C. *Things to look for*

1. Now that you have inoculated your popcorn jars it's now the waiting game, this is one area that is not the funnest part of the realm of mycology. It takes a lot of patience and virtue to be able to see the fruits of your labor! Genetics and conditions that you have in your jars play a huge factor. You are looking at about a few days or up to a week to even see any change. As stated before you want to keep your jars in a warm and dark place (72°-78°F / 22°- 25°C) You do not want to exceed the temperatures of 80°F / 26°C. If you exceed these levels you introduce the chances of contamination.

2. You should start to notice either a white fluffy growth (tomentose Fig. 1) or stringy/feathery growth (rhizomorphic Fig. 1 A).

Fig. 1

Fig. 1A

3. Now one thing that can throw people off is spotting contamination. Contamination can come in different forms. The most common that you will see in popcorn jars will either be Trichoderma (bread mold), cobweb mold, black pin mold, or other various forms of mold. Here are some examples of Trichoderma/black pin mold (Fig. 2 & Fig. 2A). These were actually two jars that I forgot to pressure cook and were hidden. So no mycelium was hurt in this demonstration…… 🙂

Fig. 2

Fig. 2A

D. *Break and shake*

1. So first off! Pat yourself on the back! This is a huge accomplishment on your end that you made it to this phase! We can't celebrate all the way just yet! So let's get into and get you pushed into the next steps!!!!

2. So with grain jars we will notice over time we get some beautiful mycelium growth, but it seems to start to slow down. We have had these jars grow successfully so far, but they are slowing down. Why? The mycelium has received enough nutrients to where it is content. This is where we need to

give it a little jumpstart! Some people recommend 30% growth of the jar, me I prefer 40%-50%+ until I do this. You will eventually learn what works best for you! This whole science is not a one way method. Learn what works best for you! Even when you find your best strategies, continue to experiment and learn! You'll be surprised with what you learn! Don't stop there, keep searching and learning different methods! This science will always keep evolving! Take your grain jar (Fig. 3/3A). With your grain jar still fully closed, get your hands ready for some slapping! Smack the jar on all sides to separate the connection of the mycelium growth from the jar. Use vigorous shakes on the jar to get all of the popcorn grains moved all around. Get grains which were on the bottom to the top & grains on the left onto the right side. It's all about moving previously colonized grains and getting them to new places. This will help with fully colonizing your jar! Your next view should be (Fig. 3B). Figure 3B shows break and shake for 3 jars of LC inoculation and one jar of research plate inoculation. You will still see some mycelium, but nothing like what you saw before. Give this another few days to a week+ and your jar will be fully colonized. Now we are getting close to push from bulk spawn and put it to substrate! (Fig. 3C).

Fig. 3

Fig. 3A

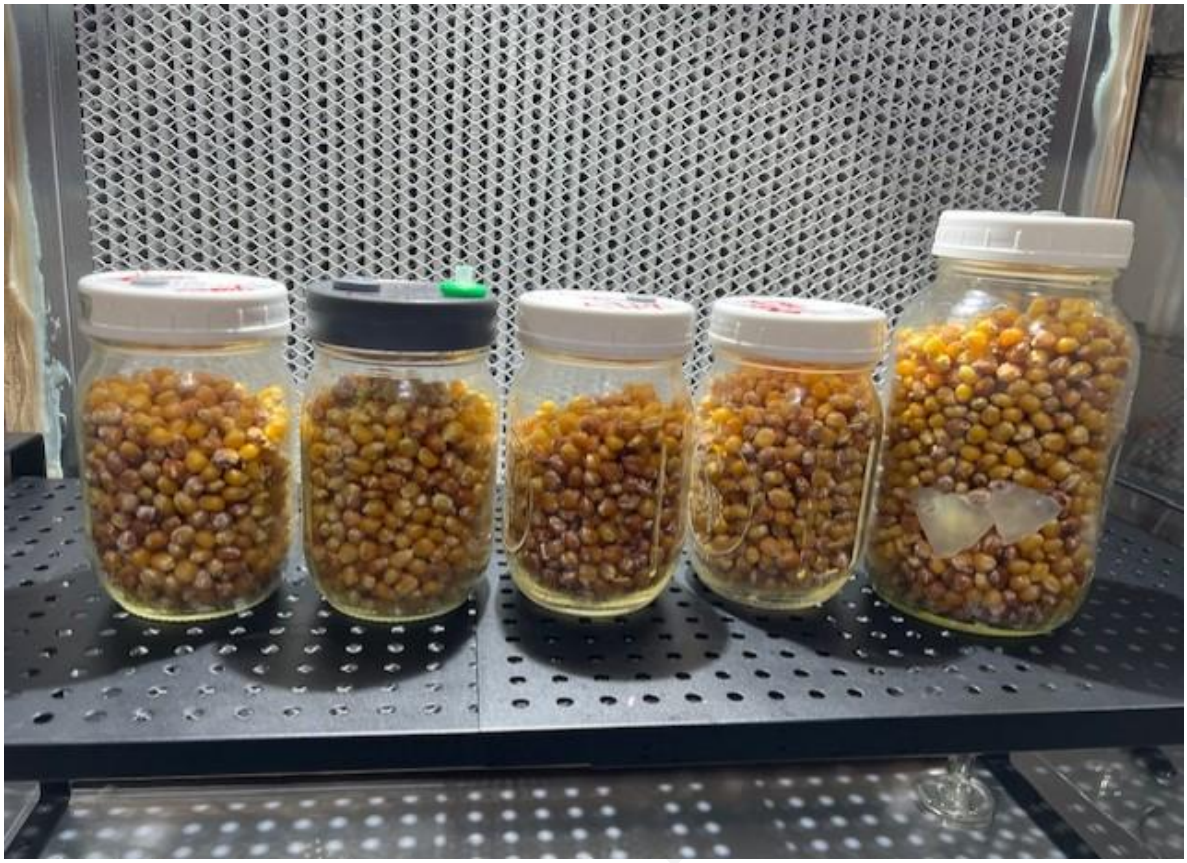


Fig. 3B
Note: you can still see mycelium on the B&S grain

Fig. 3C

E. *Smell test*

1. Now you have your fully colonized grain jar, it's time for the next challenge! The smell test will give you a great indicator if you are good or if sadly something occurred to introduce our enemy contamination. I know that you have waited patiently waiting and have done everything you can to get here. We need to play this safe. It's better to be cautious and have to start over VS being careless and trying to spawn contamination. This is where the smell test comes in! Take your fully colonized jar away from any grows or anywhere that could be impacted by spores. Crack your jar lid open, open this barely to get your nose to take the smell test. When you smell your colonized grain it should either smell of not much, smell of popcorn to a certain extent, or the best it should smell earthy or like a mushroom. Sadly at this point there still could be chances of contamination. Contamination can smell either sweet or sour/pungent, which if you smell this very high chances of contamination are present. If you smell these concerning scents of sweet or sour/pungent it's time to start again. This is the sad part of mycology. This is where discipline needs to occur, start over again. Now if sadly you are dealing with sweet or sour/pungent smells do your best to retrace everything you have done. Try to look at what you might have done improperly which has led you to this. Remember, we are humans. We make mistakes. This science is complicated, we evolve off of learning from previous mistakes. Don’t get disgruntled, you will get this in time!

2. If you pass the smell test and you smell almost nothing of the grain, an earthy smell, or the best in my opinion for preference, a smell of mushrooms from your grain it's time to push from moving your spawn grain into substrate!

3. **Spawn to substrate**: We are one step closer in this beautiful process! I hope that you have learned a lot already and are having fun!

A. So if you have had your substrate sitting in the refrigerator we need to get this to come up to room temperature. I would recommend pulling it out of the fridge and leaving it out for about 24 hours or so in order for it to slowly come up to room temperature. We do not want to try to put our spawn to a cold substrate.

B. Once We have our substrate back up to room temperature let's start with preparing our shoebox for our substrate. Take your shoebox and 70% isopropyl alcohol spray bottle and give a good spray down on the whole container, the lid, and liner (Fig. 1). Allow this to sit for a few minutes to kill any possible bacterias. Take a clean paper towel and wipe it completely out since you do not want any alcohol left over when we put our substrate and spawn into it.

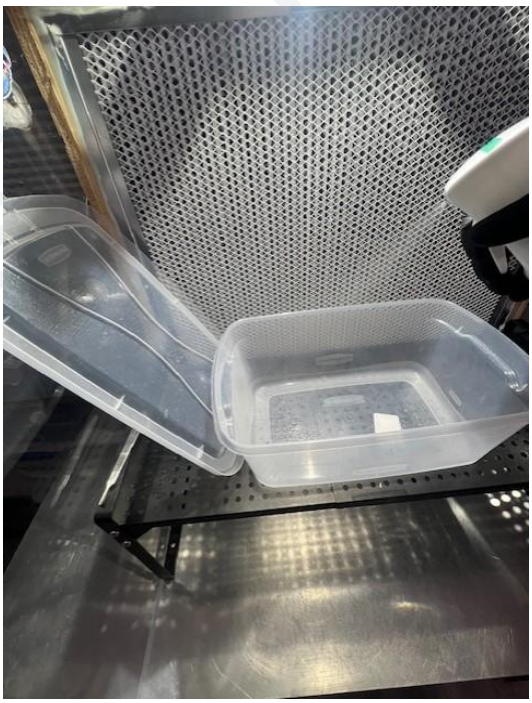


Fig. 1

C. While we are waiting for the sanitization of our tub we need to check the field capacity of our substrate. This is a very important thing for us to do. Substrates that are too dry will create issues down the road for us such as aborts or lack of growth. Substrates that are too wet can lead to contamination. We have worked hard to get to this point so lets make sure we continue to set ourselves up for success! Take a large bowl or any container where you can dump your bag of substrate into. Now what you will do is take your hand, collect up some of the substrate and squeeze it! You should see droplets of water coming out from the substrate (Fig. 2). This is considered field capacity. If there is not, SLOWLY add little bits of water and mix. Continue to check once again. It's better off to slowly introduce more water VS putting too much in. Here in Colorado I have noticed that I prefer to have a little bit higher field capacity due to the dryness of this region. So I like to see more droplets of water coming from my substrate when I squeeze it. We want to make sure that we have a great enough field capacity that our cakes will have enough moisture in them to provide for the growth. Remember mushrooms are about 90% water! Over time play around with different levels of field capacity and learn what works best for you based on your region!

Fig. 2

D. Now that you have the field capacity of your substrate you need to decide if you want to use the tub liner or not. I would highly recommend using it. In my next pictures you will notice that I am not using a tub liner, however that's just my personal preference. Tub liners can help protect your cake from moisture and water droplets from getting into the sides of your cake. This is one of the reasons for side pins. If you are going to use the tub liner, place it inside the bin and get ready to start moving substrate into the tub.

E. Do a nice thorough wash of your hands with soap and water, put your nitrile gloves on, and give your gloves a spray with the alcohol and allow it to dry. Take about ¾ of your substrate and put it into the tub and the liner. Take your fully colonized grain jar and give it a smack on the sides, just like when you did your break and shake. Before you empty the jar, give it one last smell test. It should smell earthy and mushroomy. If these are not the smells you're getting, do not move forward. Empty the entire contents of the jar into the substrate (Fig. 3)

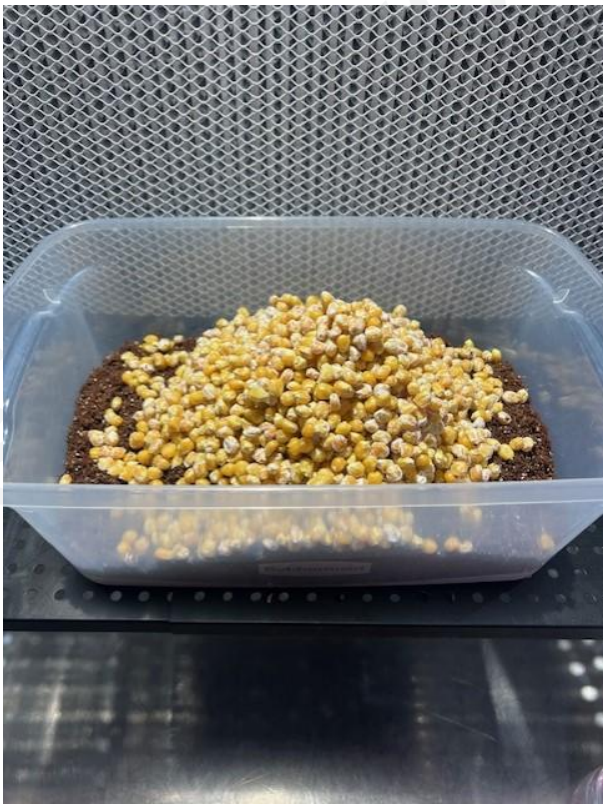


Fig. 3

During this time you should once again have that earthy/mushroom aroma. This is once again giving you an indicator that you had a contaminate free process so far! This is one of my favorite smells since I know I am one step closer!

F. Now get a nice mix up of your grain and your substrate. You want to get this as best mixed as possible! This should take a few minutes of constant mixing (Fig. 4).

Fig. 4

G. Once you have all of your grain and substrate mixed thoroughly this is where we need to pack it down. Your end state goal should be an even and flat surface. You want your substrate packed tightly so once it colonizes it will be at a brick consistency (Fig. 5).

H. Once you have your substrate packed down tightly, use your hand like a knife edge to pack down the long sides and fingers to pack down the edges of the substrate tight into the corners of the shoe box (Fig. 6).

I. Now that you have your substrate packed down, you will take the leftover substrate and create the casing layer. Take your substrate and throw it on top of your packed “cake” (Fig. 7). Evenly spread it all over. Your casing layer should be a loose layer (not packed) of substrate that covers all exposed grain and should

be about ¼ inch layer (Fig. 7A). At the very end you should have a nice tight packed down “cake” which should be about 2 ½” - 3” thick (Fig. 7B).

Fig. 5

Fig. 6

Fig. 7

Fig. 7A

Fig. 7B

J. Now that you have your tub almost ready to send to the colonization phase, take a clean paper towel and clean up any excess substrate on the bin. Trust me,

when you push this into this phase you're going to be peeping like a creeper…. Now take your fine mister water bottle, spray the edges of the container, spray the casing layer, and the inside of the lid (Fig. 8). Once you have a nice collection of small water beads on the sides and the top, close the lid (Fig. 8A).

Fig. 8

Fig. 8A

You will want to place your closed up shoebox into a dark and warm climate, just like your grain jars during inoculation (72°- 78°F / 22°- 25°C) (Fig. 8B).

K. Something that you can also do as an option is lining the edges of your tub with some tape. I used some electrical tape as an example (Fig. 9). The reason why you might want to try this, is that with these specific tubs they are not technically airtight. Now you can purchase some containers which at times might be more money and sometimes harder to find that actually have a seal on the edges. These will usually also have the side clamps to help seal the tub. The reason why I say this is optional, is that sometimes you might have your tub get pushed right into fruiting conditions due to the chances of fresh air exchange occurring. So if you are having issues with your tub not being able to fully colonize and for you to choose when to put into fruiting conditions I would recommend to try to create a seal using some tape to help prevent this from happening.

Fig. 8B

Fig. 9

4. Colonization

A. Now that we have our shoeboxes with our spawn and substrate it's the next portion of the waiting game. Each genetic & how well you mixed your spawn to substrate will play an effect on time. Genetics are the biggest factor. Some genetics are known to colonize and grow at a slower rate than others. Some genetics are quicker. So there is truly no set timeline to expect until your shoebox is fully colonized and ready to move into the fruiting conditions.

B. Some important things to always consider is during this time, you will want to crack the lid to check the status. Do your best to hold back from this. This is why I recommended you to clean the sides of the tub so you can be that peeper creeper. When you crack the lid, you are releasing necessary humidity levels which are dire for the stage of colonization. Each time you also crack the lid you are introducing small amounts of fresh air exchange (FAE). FAE is what pushes your shoebox into the fruiting conditions phase. During this time you will see different healthy growths of white fluffy growth (tomentose) or stringy/feathery growths (rhizomorphic) (Fig. 1).

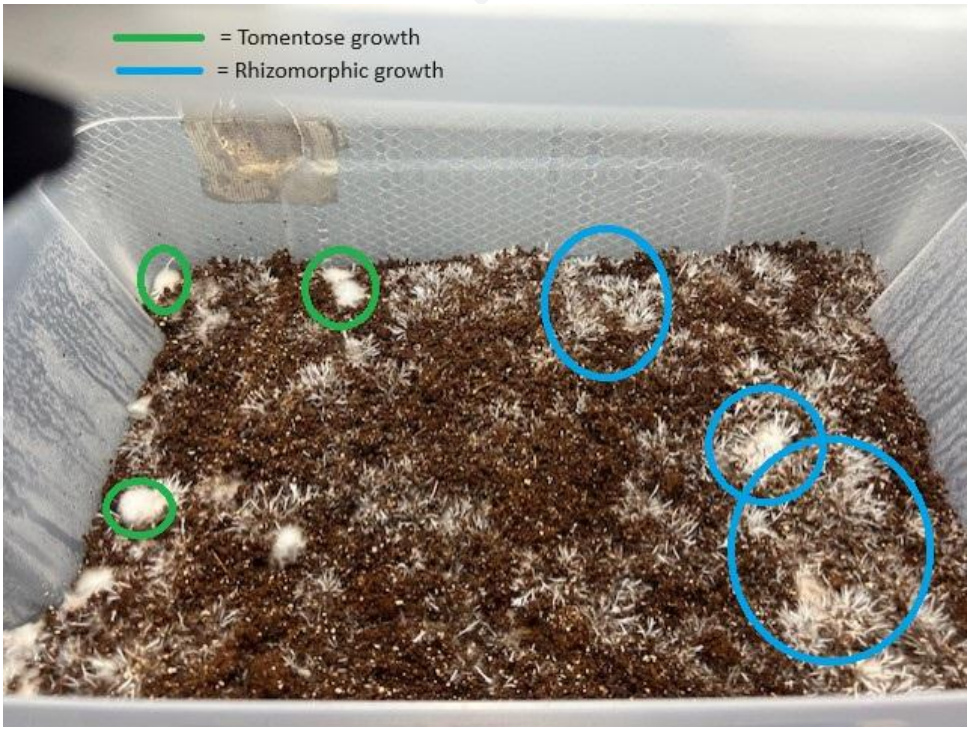


Fig. 1

C. During this waiting game you also need to keep an eye out for contaminants. Contaminants can sadly come in disguise of growth. During the phase the common contaminants that you might encounter will be, but are not limited to: Trichoderma, Cobweb mold, and Black Pin Mold. Now I know this might be a difficult task for a beginner to notice, but over time you will learn. Fingers crossed that you learn from other people's incidents VS your own. Sadly in this science of mycology we all face contamination from time to time. We can always do our best to push disciplines to prevent it, but it still can happen. The biggest thing is to learn about the indicators which might be throwing signs that something could go south for us.

    1. Mushroom metabolites aka mushroom piss. Mushroom metabolites can be seen during numerous phases of growing mushrooms. You can see this during colonization of your grain jars, colonization of your tub, and even during fruiting conditions. You will notice spots of where there were spots of white mycelium turn into a yellow/dark yellow color. Now this isn't an immediate sign of contamination, do you best not to panic! Mushroom metabolites are just a sign that there is something that the mycelium growth is having to battle. It is pretty much a sign of stress to the mycelium. Which might not always be contamination (Fig. 2)

Fig. 2

2. Trichoderma mold. This is probably one of the most infamous molds and contamination that we deal with! Trichoderma mold usually derives from a bad liquid culture or MSS. However even with clean products this can still occur. One of the big factors that can create this horrible mold especially in this stage of colonization and fruiting is temperature, humidity, and moisture. This is where we go back to stressing getting a proper field capacity of your substrate is so key to a successful growth. If you ever have water pooling up on your cake you want to take a clean paper towel and absorb any standing water. The combination of standing water or excessive moisture in your substrate and high and excessive heats of 80°F (26°C) can lead to disaster. This is something I have experienced personally numerous times throughout the time of growing. In the beginning you might notice patches that look similar to mycelium growth. However you will notice a slight difference that they almost look like scales (Fig. 3). In figure 3, look at the difference of looks of the mycelium growth and the starting scales of the trich mold. However in days they will now shift color into a green or blue (Fig. 3A).

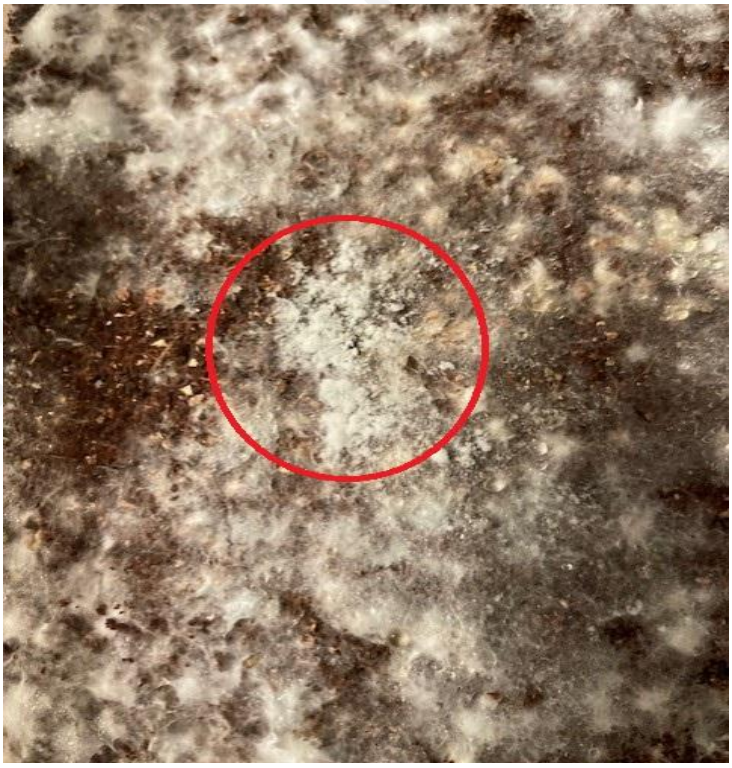


Fig. 3

Fig. 3A

Now one big thing that can throw people off is they experience bruising of their cake. This is something that can be very common to see. Bruising can occur from various reasons, however one of the most common reasons for this occurrence is spraying the cake with water excessively. The big difference in this VS trich is that your mycelium will maintain the same form, however it will turn a dark blueish color (Fig. 3B). If you ever see any discoloration of your cake a good technique to use is a swab technique. Use a sterilized Q-Tip and do a gentle rub on the location you may have suspected (Fig. 3C). Your Q-Tip should have no color on it (Fig. 3D). Now, we will use a demonstration of an obviously contaminated cake and show you what you might see in worst case scenarios (Fig. 3E & 3F). You can now see on the Q-Tip the mold spores which have rubbed off onto it. If you have any “threats” to your healthy growth, swap it! Make sure that you constantly keep an eye on your cakes for any irregularities. Always remember if you have any concerning tubs around other grows, remove them. Place them in a new location since mold spores will spread like wildfire! We don’t want to chance our other grows! I’ve been

foolish and attempted to allow them to cohabitate. It ended in disaster in the end for me. Learn from my mistakes!

Fig. 3B

Fig. 3C

Fig. 3D

Fig. 3E

Fig. 3F

3. Cobweb mold. Cobweb mold is one of the most disguised forms of mold that you might experience on your cake. It has a very similar color in the beginning to your healthy mycelium growth. However one thing that people have noticed is mold will grow at a faster rate. Cobweb mold will also grow at a higher level than mycelium will reach. We are still working on getting pictures to demonstrate the differences. The other indicator that you can see is cobweb mold will not stay white such as mycelium growth. This will be a super aggressive growth that can eventually shift in colors to an extent (Fig. 4).

Fig. 4

4. Black Pin Mold. Black pin mold shares many characteristics of cobweb mold. It starts off as an aggressive and fast growing mold which can try to disguise itself as mycelium. Once again similar to cobweb mold you will notice vertical growths different from mycelium. Now the biggest giveaway that you are experiencing this is where the tips of the white growth will eventually get small pins of black on top of them. This is where this mold gets its name, black pin (Fig. 5).

Fig. 5

D. How to prevent contamination? This is where it comes down to using disciplines when working with any stage of your product. Work in a proper environment that you can (i.e. small work spaces, work in sterile environments, use a SAB or if you are dedicated enough a laminar flow hood.) Wearing personal protective equipment sounds funny since what are you having to protect yourself from? The reality is that we don't need protection, our product we are working with needs protection from what we may introduce into its life cycle. Wear gloves when you work! Before you even put gloves on, do a thorough cleaning of your hands. It may sound silly, but look at what surgeons go through prior to operating. Look at what we hope to achieve of a beautiful growth of our mushrooms as our "patients", they are our creations. One of the biggest things you can do is if you deal with contamination do the true self reflection! What occurred, what role did I play in this happening. This can be a difficult science to learn. The biggest way you are going to become successful is learning and continuing to learn. The knowledge will never stop! New techniques will be discovered, these are exciting things in our community of brilliant individuals who hopefully share this knowledge to others! Always stay positive, never give up, and learn from previous experiences!

E. Dealing with contamination. So this is where some people will argue all day! Some people say toss it and some people say do this, etc. For my experiences of growing, contamination is something we will be faced with from time to time. Sadly once we are faced with contamination its end game for this growth. Please

don’t be foolish and let this continue to run rampant with breeding and spreading mold spores. If you are doing more than one growth if one tub gets contaminated it's eventually going to spread to the others! If you have suspicion of contamination of one, the first move is to segregate. Move this away from the others as soon as possible! If you are lucky and it’s not contaminated, move it back to the others. If it is contaminated DO NOT THROW IT AWAY! Why do you ask? There are still chances of getting growth, but not in this area we are growing. A great process for either contaminated cakes or cakes that have made all of their flushes is to bury them outside! If you have a backyard, find a spot which will not be disturbed so much. In my backyard I created 3 above ground flower boxes, which I eventually used for better purposes (Fig. 4).

Fig. 4

If you choose to grow outside with your contaminated or spent cakes I recommend that you protect them. Critters love getting into our stuff. I used a basic netting around the sides plus a bird netting to go around the top. This should hopefully help you get some growths of something that might have been trashed. This past summer I probably yielded about 1 ½ to 2 OZ dried outdoors. A huge win in my eyes (Fig. 4A).

Fig. 4A

5. Fruiting

A. So ok, let's just jump up together with emotions of joy! We are almost there!!!!!! We almost get to reap from all of the hard work we put into this lengthy process! So we now have our tubs colonized / fully colonized (Fig. 1). It’s time for us to move this tub into full fruiting conditions! While we waited we had our shoeboxes sealed and waiting for colonization.

Fig. 1

Now that we have our cake colonized to where we can get some good growth it's time to get these into fruiting conditions! It’s time to introduce misting and fresh air exchange into the habitat. Take your fine mister bottle and do another heavy mist on the sides of the walls, a light misting on the cake itself. Now when misting the cake, make sure you are not using excessive amounts. You should see very very fine water droplets on the cake. If you spray too much you can cause bruising on the mycelium. Also make sure if for any reason there is any pooling of water that you take a clean paper towel and suck up any excess water. This is not the time where we want to introduce contamination at this point! Now we are going to take our lid on our shoebox and we are going to spray the topside. We are going to be flipping the lid from the original configuration (Fig. 2).

B. So now that we have our colonized tubs misted and lid flipped to allow for fresh air exchange it comes into the next portion of the waiting game. Thankfully we are almost there! So during this phase this is another subject that is quite frequently argued about. Lighting! Now some people say that light cycles are necessary. Some people say that this isn't required. I've done experiments on both sides. WhenI first started I just went with what everyone says and I introduced a 12/12 hour light cycle. I bought some inexpensive LED grow lights from Home Depot. Do you need to buy lights? No! If you want to use the light from a window this will work perfectly fine as well! Like previously stated. I've done experiments with a 12/12 hour light cycle and I've done complete darkness growing. The biggest difference I've personally noticed is that my mushrooms will grow crawling on the floor of the substrate. Mushrooms are not photosensitive like plants are, they do not require light. The main thing for what I have noticed is the light will help guide them towards the light. So with this information I ask you. Do what your budget allows! Do what works best for you! Don't feed into what others say. Learn and experiment what works best for you!

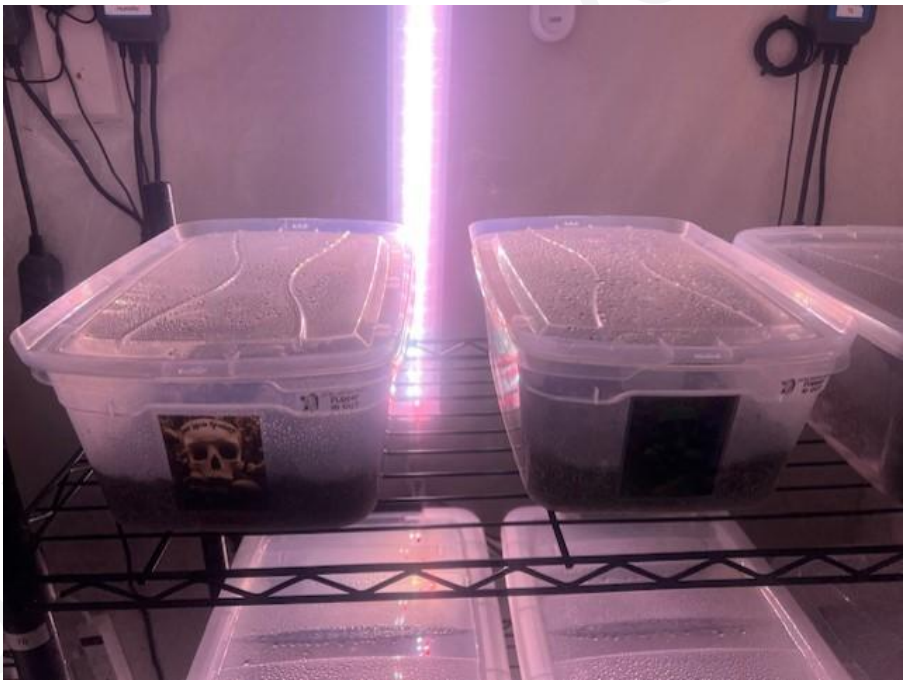
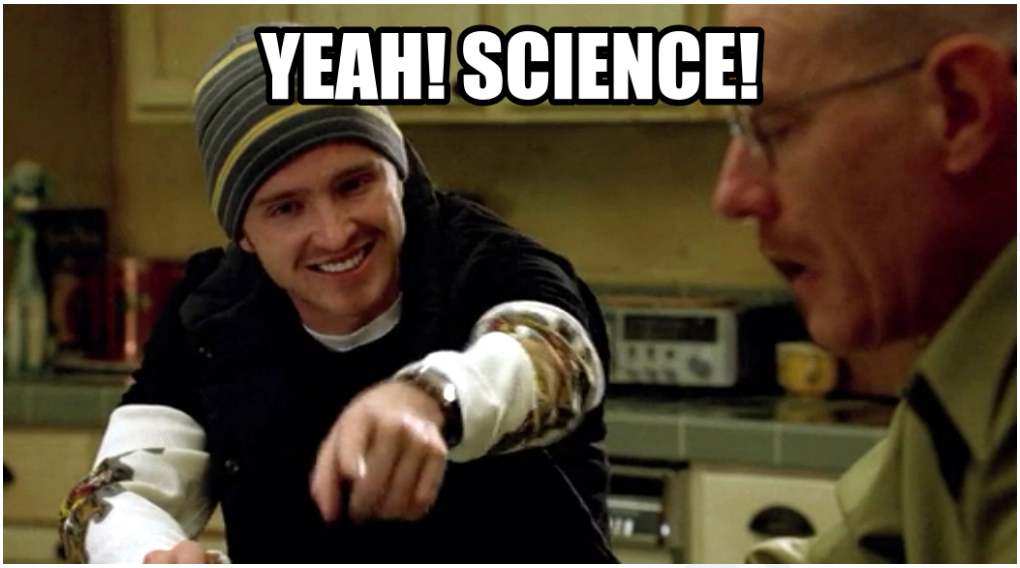


Fig. 2

C. During this phase of fruiting we will see different growths. Now before we continue, let's dive and do some geeking out with science! Everything you have been doing so far is nothing but science! It's the science of mycology! This might be alarming, but hey! Who would know? We might not have had such interests while we were younger, but it's time to dig in!



D. Now let's look at the life cycle of our mushroom buddies (Fig. 3), our fun guys! So all mushrooms start off as a mushroom spore. They start as spores. There are + and - spores. The monokaryotic compatible haploids will eventually connect and create a dikaryotic mycelium. This is where we might be able to see some of the growth. As stated before you will see two different forms of mycelium. Tomentose growth (Fig. 3A) which is the white fluffy type growths & rhizomorphic growth (Fig. 3B) which is the stringy/feathery growth. Some people will always want to hunt for rhizomorphic growth since it can be deemed as more aggressive vs tomentose. This is because you can physically see the mycelium hunting for nutrients to feed off of. Regardless, in the end mycelium is mycelium, it will eventually turn into hyphal knots (Fig. 3C). Now during this phase is where the fruiting bodies will start being selected into the initial pins (Primordia). So at this point, don't get disappointed in not seeing everything become a pin. You also need to think that each one of these pins are going to compete for nutrients. So now we are going to start seeing baby pins form! Now once the pins start to mature you will notice the caps starting to enlarge. You will eventually see the veil that is connecting the stipe and the cap together. Eventually the veil will break and this is now where spores can start to drop! Now that its life cycle has completed it will continue to try to do the same thing again!

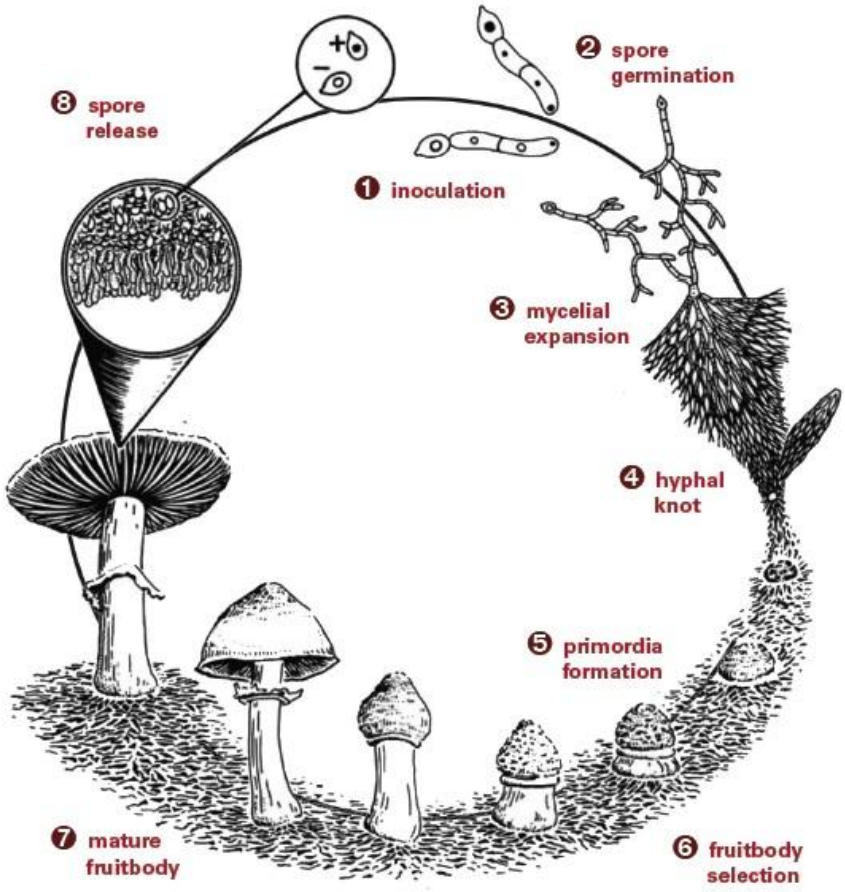


Fig. 3

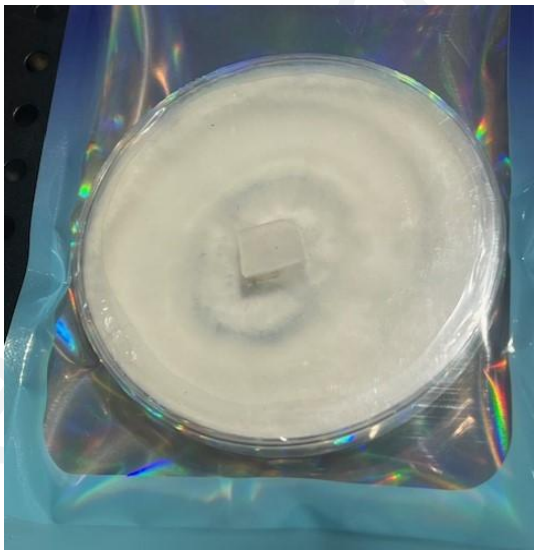


Fig. 3A

Fig. 3B

Fig. 3C

E. Let’s also do a quick crash course of the anatomy of the mushroom just to make sure that we are all on the same sheet of music when it comes to understanding what we are looking at! So let’s start by referencing (Fig. 4). So to give you a quick and basic understanding of the terms let’s talk about it! So we will start from the top. We have our basics such as the cap of our mushroom, pretty simple term. From there we will have our next two terms from that general area. So once we look at the bottom of the cap we will see the gills. This is what produces the spores at the end of the life cycle. This is where spore prints, swabs, and culture swabs are created from. The next term is the veil, this is a very mentioned and important term. We need to pick the majority of our mushrooms of course based on what genetics we are working with on the separation of the veil. If we do not do it correctly we can prevent spore dropage. Now going further down, we might not always see this. I am speaking about the ring/skirt. Depending on the genetics we might not even see this. When you do see this it's when the veil is separated from the gills. You might see some left over of the ring/skirt still there. Lastly we will talk about the volva and the mycelium network that might be still there upon harvesting.

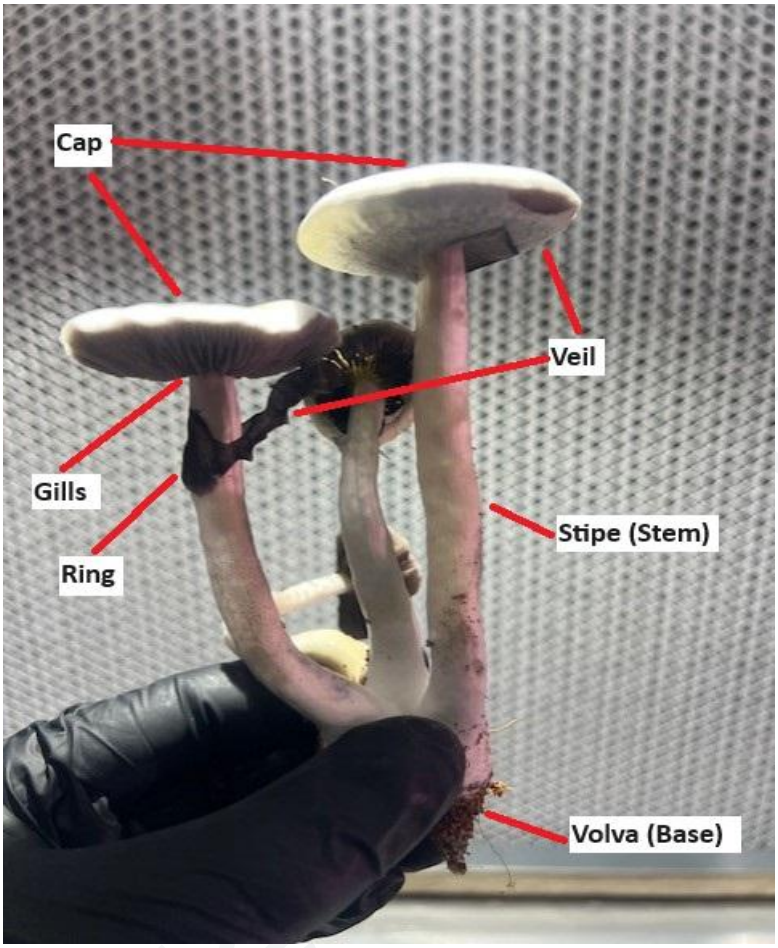


Fig. 4

F. Now let’s get back to talking about the next steps! Now this is where you need to start paying attention to your tub! Mushrooms will grow at different speeds, so some might need to be harvested before others. At the same time you need to be attentive to see if there might be any issues that may be occurring in your tub! One of the common things some beginners might experience due to not having proper field capacity of their substrate is aborts. Now as I stated before your mushrooms might compete against each other for their needed nutrients. If you don't have proper field capacity from the beginning there is a very high chance that you will experience aborts (Fig. 4). So aborts will start with what it looks like healthy growth, however they will eventually be bled dry of nutrients and they will die. Each type of strain that you grow might look different. However the most common thing you will see is when the growth slows down and stops and that the caps will turn towards a black color. If you experience aborts, harvest them! They are going to die regardless, but this is not a loss. Also it's better off to harvest

them so you don’t have to worry about any possibilities of any contamination hitting the rest of your tub. On a side note, which I have experienced, these are some spicy lil guys if you know what I mean…..

Fig. 4

G. Now this is where it truly gets so exciting. Your fruits will grow at an insane rate! When you creep on them with peeping that night before you fall asleep to what you see in the morning. Seeing the size difference from when you leave for work and come back home is truly mind blowing! One day's difference can show you such huge differences! Keep watching your fruits! Not all will grow at the same rate. Here are some examples! These are all the same tub over small amounts of time! (Fig 5, 5A, & 5B). It’s truly so beautiful getting to see our creations grow! Each day we see something new! Each genetics will have its exact characteristics of growth, which if you really want to know how your genetics will grow, hit your vendor up! Here at Dead Inside Mycology we will do our best to let you know what to look for to the best of our ability and also let you know recommended harvesting times!

Fig. 5

Fig. 5A

Fig. 5B

H. Fruiting abnormalities. Let's discuss some things that you might experience that could be concerning to you or some indicators that you need to make some adjustments in your climate.

1. Fuzzy feet. So fuzzy feet is one of the most common things people will experience. This is very common when you are running unmodified tubs. Fuzzy feet can occur on your mushroom base (Fig. 6). When you see this, this is the mushroom giving you the indicator that your growth needs more fresh air exchange. Now this isn't anything to be scared about, all you need to do is to increase the level of the fresh air exchange that your mushrooms need. Fuzzy hats also can be some of the characteristics of that specific genetic you may be growing. Some of the B-/B+ variants are notorious for this to occur.

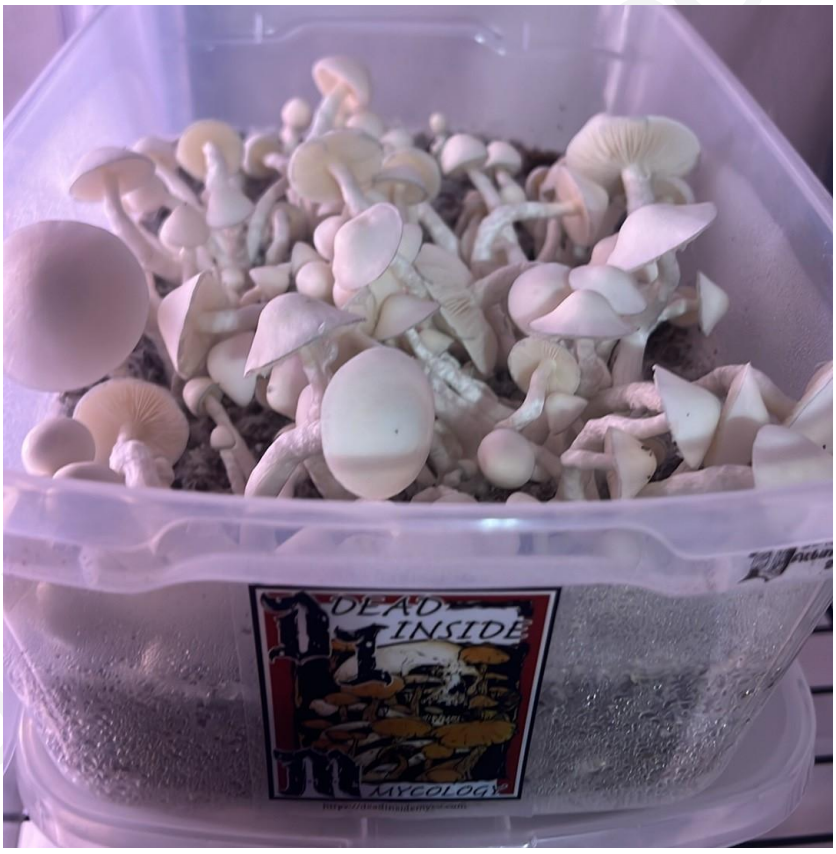
2. Mutations. Now this is something that I always love to see! This is where something is going on in the genetic makeup of your mushroom's growth. This is nothing to be alarmed by, but possibly something to be excited by! When you get those super unique mutations (Fig. 6A) it can be quite fun to clone them and attempt to stabilize that mutation and recreate it in future grows!

3. Blobs. So this is also something that can be common in some genetics versus others. APE & PE are one of the genetics that can be the most susceptible to blobbing. Which once again nothing to be worried about. Also for what we have seen in testing, blobs can be quite potent grows (Fig. 6B)

Fig. 6

Fig. 6A

Fig. 6B



6. **Harvesting**

A. Alright let's just once again jump up and down for pure excitement! Give yourself a pat on the back for getting here! We are now in the final phases of where we get to reap what we sow! Congratulations!!!!! This is a huge accomplishment for the first time grower and even that seasoned grower! We all love getting to reap the benefits of our hard work! This is no simple or easy task, the biggest difficulty is the waiting game! This is not a fast experience to go through!

B. So now each gene will have different harvesting times. If you are growing something that has normal hues such as Psilocybe Natalensis, Tidal Wave, Blue Meanies, etc. You will notice that once the veil breaks this is where we will experience the drop of spores. This is a huge indicator of when to harvest, when the veil breaks. Now in the beginning some people might want to continue to allow them to grow, don't! Once the veil breaks on these they are at maturity and are done producing psilocybin/psilocin. You can have one fruit that just had the veil break and harvest VS a fruit that was allowed to continue to grow, the potency levels are going to be the exact same! Once the veil breaks that is when that mushroom will stop producing chemical potency contents. So now all you are doing is allowing it to grow more water weight. I know we all want to grow those monster mushrooms that we might see. Let's show you some pictures of what to look for! So we always want to try to harvest our more common types by the veil drop (Fig. 1). We can see in this photo that the veils are just starting to break. Let's also look into a fruit which is so cute and tiny, but the veil has already broken (Fig. 1A). Lastly let's look at some fruits that I had cleared from my tub to initiate the second flush which were premature for their growth (Fig. 1B).

Fig. 1

Fig. 1A

Fig. 1B

The other thing that you might experience when you want to wait and allow these to grow after the veil drops, is the lovely spore droppage (Fig. 1C). This image is when I left town on a surprise trip of 4 days. My fruits were getting close to needing to be harvested. Sadly, I was not there to harvest them. Their veils broke, continued to grow and went into the final life cycle of their life and dropped spores. You will see spore droppage usually on mushrooms that are trying to grow underneath others that aren't fully mature yet. In this pic you can see that the spores have collected heavily on the caps, and did a HEAVY dump on the substrate. Notice in the middle of the cake VS the edges where outer edges. You are staring at complete spores! These cover the cake! Now are these wasted? No not at all! Now your cake might have some interference with the next flushes since spores will communicate and possibly pretty much tell the mycelium, “Hey we are done! Jobs done!” Just do your best to harvest your mushrooms when needed! This is something completely preventable! One thing that I will say is this is not the same for all genetics that you might be attempting to grow. Some genetics such as many albino variants will not actually drop spores. This is where it comes into trying to find the happy medium timing to harvest them. One of the main indicators for the timing of harvesting them is the feeling of the stipe. You might see your fruits which the veil has already broken. You want to feel the firmness of the stipe. If your stipe still feels firm, it's not ready yet. Once you can give a squeeze and it feels almost like a marshmallow its town to harvest it. Some genetics also will give you indicators to harvest, now this isn't for all! Each vendor who plays with genetics can tell you the best. Some of the times you

might have something such as a Jack Frost genetic will also help you know when to harvest once you start noticing the gills turning the beautiful blue/gray coloration. However you might get Jack Frost from vendor A & B. Depending on what this individual did in trying to select phenotypes it might not end in the exact same as the end results.

C. That's where this science is so beautiful! You are able to find specific traits which you can replicate. You can create your own variation of a common growth! Now, one little thing I will have to say is out of common courtesy give the original grower credit if you want to post about it! You have to remember, someone possibly has worked months if not years to get what you are working with. This beautiful community of mycology enthusiasts is about recognizing those who worked so hard on their product that they shared with you!

Fig. 1C

D. Now let's just hope that you have been paying attention to your progress in your grow! Avoid my mistakes of the dreaded spore droppage. In the end, it doesn't really matter all that much, we have fruits! It's time to get these out of the tub and

prep them for drying or your next steps of what you chose! So when it comes to harvesting your fruits I would recommend the basic twist and pull method. We are going to carefully grab our fruit from the bottom of the base of the stipe. Gently use a movement of twisting while pulling upward (Fig. 2). You can also use the method that some use and just cut them as slow to the base with a sharp knife. Personally, I am not a fan of this. Some will argue that you are ripping up and damaging the mycelium network, however I chose personally to use this method. In my eyes there will not be a growth that comes from that specific spot again. This is not like your average plant or tree where there can be growth from damaged spots.

Fig. 2

E. Now that we have all of our little fruits harvested let's start getting them prepared for cleaning them and ready to throw into drying! So I will take all of my fruits and get them over by my sink. I will do my best to not use water on them if I do not have to. You should be able to use your nails and lightly pull off the bottom skin

of the stipe where there was substrate on it. You can also find a small scrubbing brush at any store. I like this little one I found since it has a plastic blade on the end to help me if needed (Fig. 3).

Fig. 3

Now say if you did experience the horrid spore droppage on heavy levels take some running water and use your fingers to gently wash the spores off of the caps.

7. **Additional flushes**

A. So now that we have completed our first flush it's time to push our cake onto the subsequent flushes! You did all of the hard work and waited for your first flush. Now this is where it's nice! We are able to get new growth in a fraction of the time!

B. So this is where it really becomes important for the ability to read the condition of your cake. I stressed previously that you need to achieve proper field capacity for your initial growth. That still plays into factor. If you had proper field capacity initially and depends on how much growth you got out of your first cake will play a big factor. Usually on your first flush you should only require a heavy misting of your cake. Some little things to do is to completely clear off your cake. If you do have some mushrooms that are getting close to having to be harvested, go ahead and wait it out. If you have some that still have a way to go, go ahead and harvest them. They might not have the potency levels that we would like to have, but it;s better off to start from fresh.

C. Once you have your cake cleared out depending on reading the level of your cakes health we need to figure out if we are going to do a heavy mist or are we going to use the dunk technique. So one thing that you need to remember is that mushrooms are 90% water weight. Where does this water come from? Simple from the cake that you are growing them on. Usually with your first flush you

should only require a heavy misting. Subsequent flushes will require more “intense” methods of rehydrating our cake such as dunking. If you are starting off on your second flush, start simple. Use a heavy mist technique. Now think about using your fine mister and giving your cake a small misting to help push it from colonization into fruiting. Now multiply this by about 5-10X. This is where you will need to learn your levels of which you go to. This ties into knowing how to read the health of your cake is super vital. We want to get our substrate back into a pretty heavily saturated state. We want to see that darker color in the beginning. Personally when I heavily mist my cake I want to get a pretty saturated level of color. We do not want to get to the point of having standing water since it should be absorbing. This is something that will take you time to find your happy medium of what your heavy misting consists of.

D. After additional flushes misting might not be an option anymore. This is where we need to go to more extremes. We will now be dunking our cake. Dunking is the process of us actually submerging our full cake in water. You can use either tap water or distilled water. Personally I use tap water, the only reason why I do this is since I would prefer not to introduce chlorine or any other chemicals which can be found in tap water.

E. Now we will get our cake submerged in enough water to create our cake to float. Now say if you are running 6 qt shoeboxes and have access to another unused tub you can use a stacking type technique of taking another tub and you will first off want to do a quick spray down with some 70% isopropyl alcohol on the bottom edge of this tub. Allow it some time to sanitize, do a nice wipe down with a clean paper towel. Once completely dry and wiped down you will want to take your sanitized tub and place it upon your cake which is floating in water. Now find some canned goods or water and place it in the top tub (Fig 1). This will push our floating cake down to the bottom, which will ensure that our whole cake is submerged and has the chance to absorb all of those needed liquid to hydrate it! Now let’s move this tub into the refrigerator for a bit of time (Fig 1A). Now this is where it comes to preference. How long do I dunk my cake? There is no right answer honestly. Some people will recommend 3-4 hours, some up to 12-24 hours. This will all be up to what you think is going to be best for you rehydrating your cake. You should at least dunk your cake for about 3-4 hours minimum to give the chance for full rehydration.

Fig. 1

Fig. 1A

F. Now that we have waited whatever period of time that you choose it's time to drain all of the excess water out. If you are working with a smaller cake this will be something super simple. Once you start working with mono tubs and larger size containers this can be challenging. This is also where it is super important that you have your cake at least that recommended 2 ½" - 3" thick. This will help from having your cake break apart while attempting to drain it. If you are running small 6 QT tubs and you use an additional tub to weigh it down it will be simple. Take your hand and apply pressure on the top tub, drain out as much excess water as you possibly can. You don't need to sit there and try to squeeze this thing out dry like ringing out a towel, just enough to ensure there is no standing water in our tub.

G. Now that we have done this, it’s time to throw this tub back into fruiting conditions. Something else you can do which is completely optional is to throw a new super thin casing layer (Fig 1C). Something that you should also pay attention to is the possibilities of failure at this point. At this point our cake should be pretty resilient to contamination. However that doesn’t mean it can’t happen. If excessive water is still there and combined with heat, it can happen. Just keep an eye out for any issues. Fingers crossed for more fruiting!

Fig. 1C

H. The beautiful thing about additional flushes is you are not having to wait as long as you did before to see pinning and fruiting! Usually within about a week's time frame or so you will start to see new pins or already have some great looking growth. On the average you should at least be able to get 3-4 flushes. You might notice that your fruits are larger or more pins are now occurring. Some people even have experience like only one or two fruits occur, but they were monstrous! Keep running it until it's not worth the time for you!

I. Once your cake is completely tapped out and can’t give you much more it's time to call it quits for this cake. Now, should you throw it away? My response is NO! Just as I recommended for contaminated cakes, go bury it outside! You might be surprised what an old dog might have to show for new tricks when you least expect it!

8. **Drying and storage**

A. Alright now we are done with all of the hard parts, let's get these lil' guis dried up! So there are so many different methods that you are able to dry out your fruits. You can take a fan and turn it on its side and get a pan that has some holes in it (Fig. 1). Put your fruits on the rack and use the fan at a slow speed. The one thing I would highly recommend, especially if this is a hobby you might dive deep into, is buy a food dehydrator! You can easily find them at second hand stores or they are getting really inexpensive these days off of the internet (Fig. 1A). Other individuals have been able to find success also using their stove. Now due to what I have used which is only using a food dehydrator this is where I found my success. This is my recommendation, however look into what works best for your budget and means possible. One thing to remember, too low of heat/time required to dry can allow moisture in our fruits which will break down psilocybin into psilocin (not wanted). The other factor is introducing our fruits to extreme heats which will kill psilocybin. I have yet to see scientific studies showing the exact temperature. So I will recommend from my experiences to stick at 165° F (74° C) max to play it safe. I will be doing experiments with testing later on which will be in Version 2 of this manual of scientific testing to see what gives best! Let's just keep to the basics for now!

B. Now once you select which method you will be using its time to talk about heats and drying times. If you are just using simple fan methods it will just be a waiting game. Using dehydrators there are different techniques that people like to use. Some people like to use a low and slow approach, so doing a drying cycle of temperatures of 95°-105°F (35°-40°C) at about 12-24 hours. Personally I prefer to do a higher temperature of 155°-165°F (68°-73°C) for about 12-24 hours. You want your mushrooms to be "cracker dry". This means you should be able to squeeze on a cap or a stem and it should crack, just like a cracker. Now can you overdry your mushrooms? No. Now one thing that can and will affect your mushrooms is are you keeping them in original form or are you cutting them up? Now some genetics will grow huge! It might take days on end to dry so some people cut their larger fruits up in order to dry them quicker. This specifically WILL affect your overall potency. When you are cutting your fruits up you are creating oxidation with the introduction of oxygen. Yeah they are going to look super pretty and blue! Some people say oh the blue shows how potent it is! That is not completely true. The effect of the oxidation is actually losing the chemical potencies. So if you are able to refrain from cutting your fruits up, don't do it!

However as stated there are just some of those myco monsters that will require it.

Fig. 1

Fig. 1A

C. Now that we have our fruits in a nice cracker state it's time to store them! Now I will recommend two different methods. Of course there are more than one way to do it, but I will just stick to two simple methods. Throwing them in a sealed mason jar (Fig. 2). The other method would be more towards longer storage conditions and that is using a vacuum sealer (Fig 2A). One thing that I have learned recently while attending the Psychedelics Cup of Denver was the reasoning of using desiccant packets. I have always used these, but didn't have the full scientific knowledge on this. As we stated before we want our mushrooms at "cracker dry". The reason that you want your fruits at this level is that any high levels of moisture that might still be in your fruits can cause contamination in your storage (which is a little less likely), but it is going to cause the degradation of your psilocybin. The moisture levels will over time break your psilocybin into psilocin. Why does this matter? It comes down to losing potency over time. You want higher levels of psilocybin content which will then be naturally broken down into psilocin. All fruits will have levels of Psilocybin and Psilocin in there already from fresh harvest. They can also contain alkaloids such as Baeocystin, Norbaeocystin, Norpsilocin, & Aeruginascin. Now what are these other alkaloids? These are some of the other tryptamines that can be found in our lil fungi. Which these can truly affect the overall experience of your journey. Each genetic trait

will have similarities and differences. These alkaloids play a big role when it comes to making experiences different.

Fig. 2

Fig. 2A

9. **Conclusion**

A. Now I truly hope that this manual was able to help you in any shape or form for setting you up with success! This isn't the one stop shop for information as stated previously. Just some things I have been doing myself which of course were learned from various individuals within this beautiful mycology community. Here's some little things to always try to keep in mind!

1. Always get your liquid cultures, multispore syringes, or research plates from a reputable vendor (come check out what we have to offer….. 😉)

2. If working with liquid cultures or multispore syringes, TEST THEM FIRST! If you are not testing your LC/MSS on agar before moving onto the next steps you might be setting yourself up for failure! You might think you have great mycelium growth going on, but unbeknownst you have contamination lurking behind. This might not even be noticed until you are in the colonization and fruiting stages. Regardless of who you got your syringe from, test it! We can do our best to provide you with a high quality product. There are so many variables. If tested and found faulty, we who are responsible for our work will replace it for free! If not, please find a new vendor!

3. Be sterile! Work in sterile environments, if this is something that really intrigues you I would highly recommend building yourself a Still Air Box. If it really continues to push your levels of fascination you can either build or buy a laminar flow hood. Here's a pic of my setup that I built, which I would say is around $500-$700 for me to build everything to include the stand (Fig. 1). Keep your work space nice and tidy! In between working sessions, sanitize and clean! 70% isopropyl is your friend! Spray the hell out of your work space, allow it to soak and wipe it up.

4. Wear Personal Protective Gear (PPE). Now does everyone do this? No, me personally I always ensure I have a fresh pair of nitrile gloves, spray them with alcohol. One thing I have eventually adapted into my work routines is always wearing a mask when working with agar, inoculating grain with agar, and when I test and create my liquid cultures. A simple disposable mask can be used. I

went above and beyond and picked up a 3M ventilation mask (Fig. 2). However I use this for when I process one of our fungis near and stronger cousins….

5. If you are faced with contamination it's highly highly encouraged to not open jars or tubs which may have other tubs around them. Mold spores will travel like wildfire. If you have other grows occurring at the same time, once you have properly disposed of the contaminated subject. I would recommend a heavy clean. Make sure that you are removing any tubs that might be actively growing into a safe location, do some thorough sanitization and allow it to vent out for a little while before putting them back in.

6. Don’t get too frustrated and don’t give up!!!! This can be quite the difficult science to learn. There’s a high chance that you will be hit with failure later on. There are even some of the most experienced and legendary status growers that still run into contamination. So do yourself a favor! Don’t get upset and call it quits! You will be able to grow, anyone can! Now a great thing to do is to give yourself some honest reflection on everything that you did and might not have done properly. You will only be able to learn from your previous mistakes if you are honest with yourself. Also seek guidance in our online communities. Yeah you might run into one of those lovely people on Social Media that will try to bash you. Brush them off, however there’s tons of us to include myself that I love helping individuals one on one for trying to help set them up for success!

7. Be a responsible grower! Dispose of all things properly, ESPECIALLY Sharps! Buy yourself a sharps container or based on local laws, use a juice container, label it as a sharps container (Fig. 3). and dispose of all blades and needles properly. We cannot be careless and possibly injure someone such as our trash collectors!

8. Share this manual with as many people as you can who could be helped by this! I wanted to create this manual to provide to those for FREE! Knowledge is something that should not be sold in my personal opinion. Also forewarning I am in the process of getting a copyright on this. If I do find out that someone is trying to profit off

of this publication which is meant to be free, I will pursue legal action.

9. Now our shameless plug……. If this is something you enjoyed, send us a like and a follow on our Social Media accounts. If you scan this QR it will take you to one of our SM accounts on our website! We would love to see some pictures of success stories from you all! It is one of my favorite things to be able to see when I am able to help someone out with this beautiful science!

10. Have fun with this beautiful science of mycology and most importantly, be a good person!!!!!

Fig. 1

Fig. 2

Fig. 3

SCAN ME!!!

Now that we have covered the basics of growing I will be working on the Version 2 of this manual. The next topics that I will be covering will be:

1. Making agar dishes (multiple recipes)
2. Agar transfers
3. Cleaning up agar plates
4. Cloning genetics
5. Simple methods of crossing genetics using agar
6. Making liquid cultures
7. Making grain jars & bags
8. Making substrate
9. Making monotubs & making modified tubs
10. And more…….

C. There are of course more topics that I will be covering all, but there are some of them. If there are any topics that you think could help out anyone to include yourself that are listed shoot me an email! dana@deadinsidemyco.com!

Mush Love!!!

Dana @ Dead Inside Mycology!!!!!

Feeling dead inside? It's time to grow!!