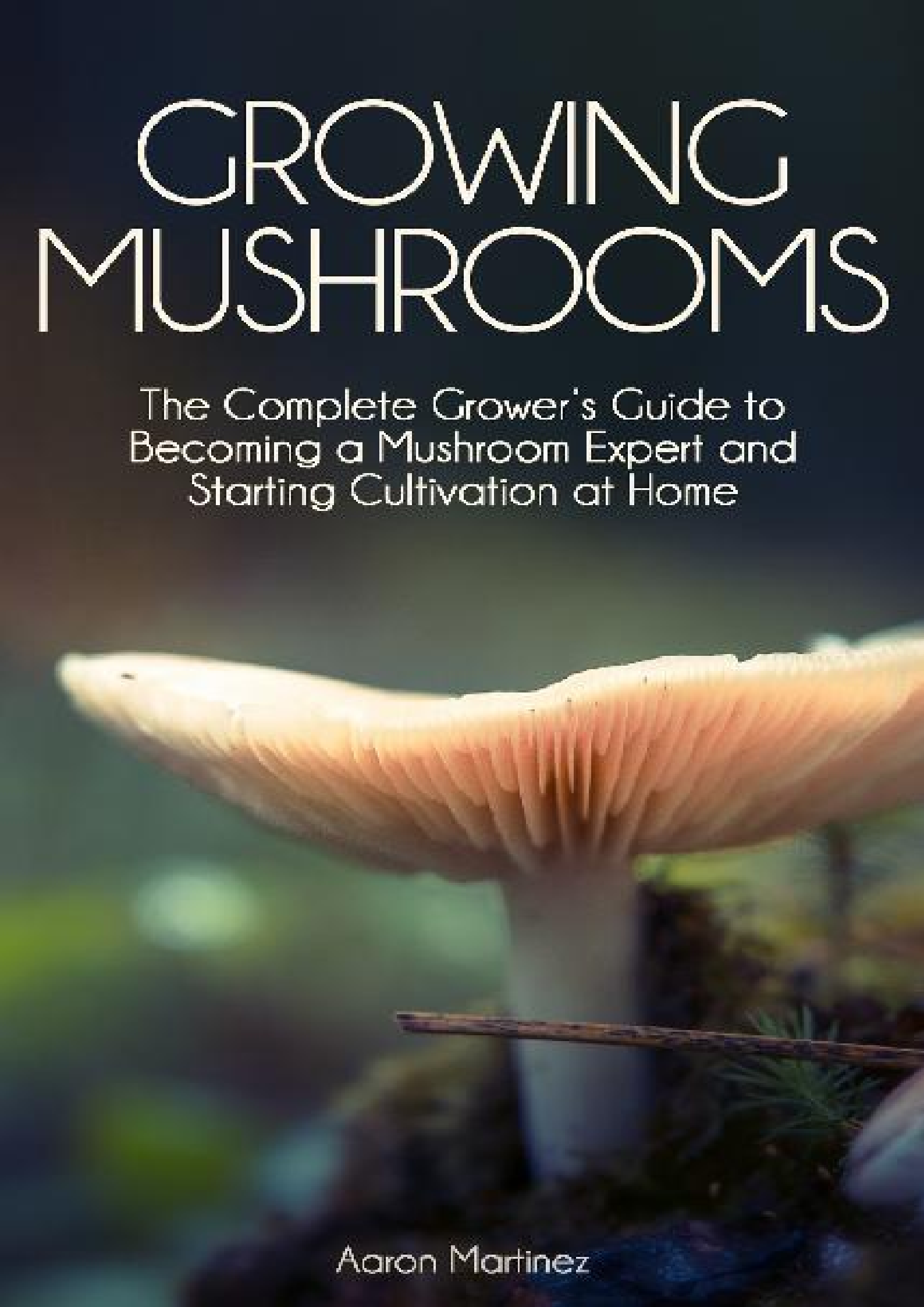
GROWING MUSHROOMS

The Complete Grower's Guide to Becoming a Mushroom Expert and Starting Cultivation at Home



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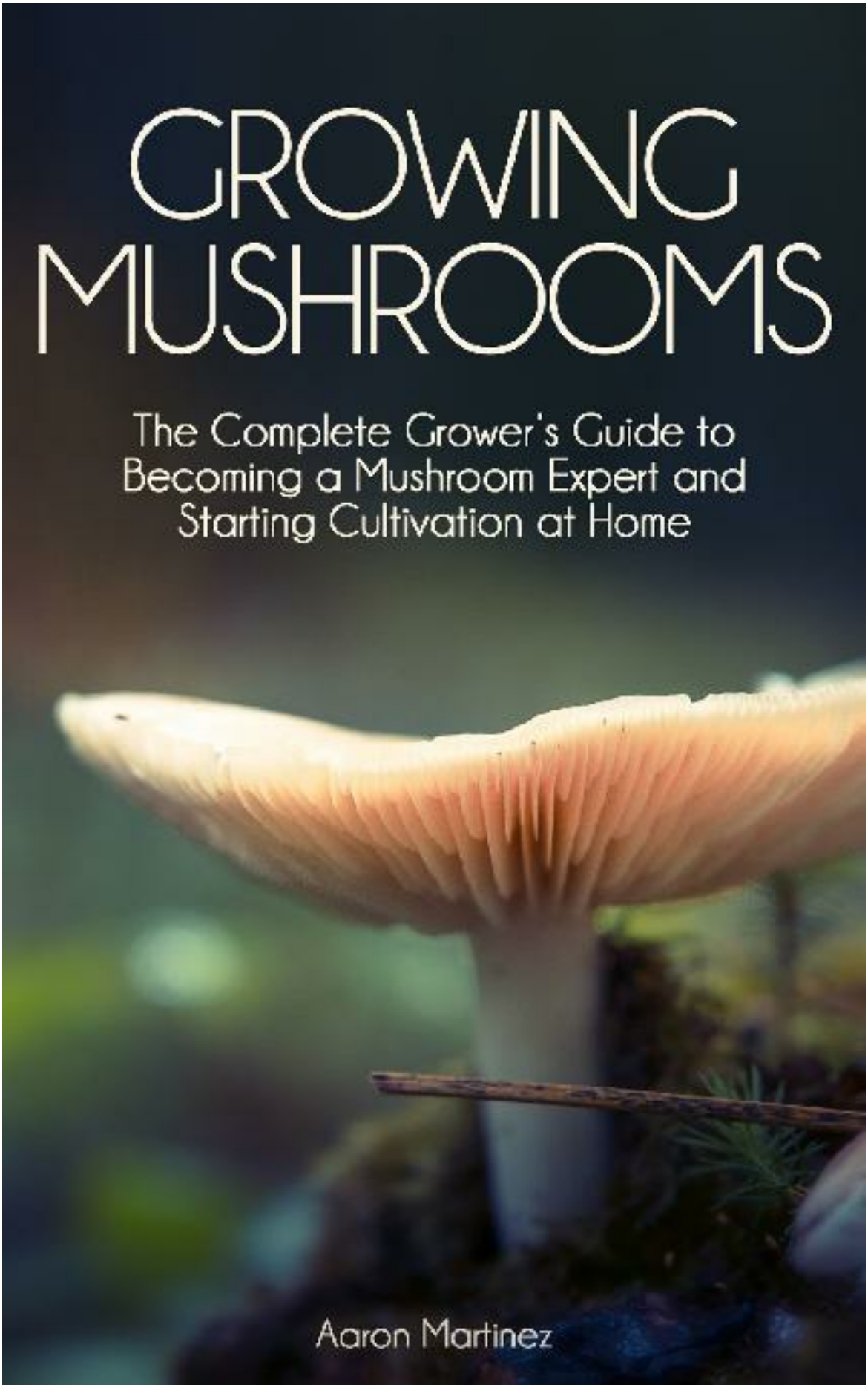

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Acknowledgments

Ah, yes, I see. You read acknowledgments. You and I have a lot in common, then.

I want to thank you before you begin reading. Yes, you; the amazing reader. This book wouldn't be possible without you, since I wouldn't have a reason to write it in the first place (No one wants to write a book no one would want to read, right?). So, yes, this is my acknowledgement to you, my dear friend. Please feel acknowledged.

Thank you for acquiring this book! You have no idea how excited I am for you to start, so I won't keep you much longer.

This is the first step towards learning something amazing that can potentially change your life, and I truly hope that you make the best of it.

If you haven't skipped this page yet, just know that you are very cool – the best reader ever. Thank you for that, too. If you happen to like this book; if it brings anything positive into your life (even if it makes you smile a little), I sincerely hope you let me know.

You can write a sincere review in my **Amazon** page – no matter if it breaks my heart, I just want to read your thoughts.

Now that I poured my heart out for you, it's time to begin this journey.

Let's dive in!

Introduction

Nature is many things (more than we could fit into one book), but at the top of that list, written in thick, bold font is the word “mind-blowing.” There are so many things we know about it; scientists have spent decades researching its deepest secrets, trying to figure out its level of perfection, but it continues to amaze us with every discovery, and I believe we are only scratching the surface.

Even the things we already know like the backs of our hands keep making the hairs of my arms stand up whenever I think about them a little deeper. In this book, we will be discussing one of my favorite ones: The Fungi Kingdom. Not plants, not bacteria, not animals – fungi needed their own kingdom because that’s how cool they are.

They are ancient, too, more than most people could even imagine. There’s evidence that fungi’s origins go back over 600 million years, how amazing is that? They surely are one of the most ancient groups still present in the world that we know. Fungi are found throughout the entire planet, including land, water, and air, and even in some plants and animals. In short, they are simply everywhere.

But why am I talking about Fungi if this book is clearly about mushrooms? Well, mushrooms are part of the fungi group, so it is important to know where they belong. Mushrooms are a whole other aspect of nature capable of blowing your mind. When you think about mushrooms, what do you imagine? You probably think of the common little brown or white mushroom with the basic cap, gill, and stem that you can find in the grocery store. However, this is only one type of mushroom out of thousands – literally.

Mushrooms come in an incredible array of colors, sizes, and characteristics that some of them you wouldn’t even be able to recognize them as mushrooms at all (there’s one that’s the size of a volleyball, can you imagine?).

But that’s what’s great about nature – it never ceases to amaze. The history of humankind shows that the use of mushrooms goes back to the Paleolithic times, and they have made their mark in human evolution. They played impressive roles in ancient Greece, India, and Mesoamerica, their cultures completely ingrained with the use of mushrooms in different rituals and ceremonies.

Our emotional response to mushrooms also goes back that long and is present even today. Those who understand them are fascinated by their nature, while those who don't are outright scared of them. I wasn't always excluded from the latter if I'm being honest. I remember spotting a mushroom in my backyard back when I was young and hearing my mother's voice in my head: "Don't touch it, it might be poisonous."

It was common spotting mushrooms almost in any place, but that's due to the number of places it is capable of growing. Mushrooms can grow on trees, on the ground, attached to dead logs, in swamps, and even on the side of cliffs. This makes sense, knowing how vast the world of mushrooms is, however, it isn't as big as the world of possibilities mushrooms can offer to humankind even today.

Scientists, pharmacologists, and overall mushroom growers are finding a whole new frontier of knowledge, discovering the wonders of these little beauties and how they can help us in multiple aspects. This is a fairly new area of research – only recently have we begun to learn about the gigantic biological power of mushrooms.

Mushrooms have the power to improve the way we recycle, for example, which could help us heal our planet faster. Earth's evolution has shown that fungal networks are the best force for managing entire ecosystems. How incredible is that?

I believe we have covered enough information to get you excited about this new aspect of your life. Learning how to cultivate mushrooms from the comfort of your home is one amazing way to improve your lifestyle. The stigma against mushrooms should be eliminated through learning how to differentiate the harmful species from the harmless and understanding how many good things they can bring into our lives. You are taking the first step towards a better you, that's for sure.

Besides, compared to animals and plants, which we have been cultivating and growing from centuries ago, the home-growing of mushrooms is barely starting. Learning how to grow mushrooms at home, either for your own health or for profit, is one step closer to a fuller life, more connected to nature and everything it has to offer.

Filled with how-to information and colorful pictures, this book can take a complete beginner who has no idea about mushrooms at all and turn them into a prepared grower ready to start their own mushroom business in their community. Hopefully, by now, you are as excited as I am to start this journey. So, without further ado, let's dive into this wonderful world!

What are Mushrooms?

The first step into learning how to grow mushrooms is to understand them. You cannot dive headfirst into the world of mushrooms without first knowing what are they and what's their role in nature.

Knowledge is the only way towards eliminating the stigma surrounding mushrooms and helping people acknowledge how great and interesting they are. So, what exactly is a mushroom?

Warning. In the paragraphs that follow you might find yourself suppressing a yawn if you are not a big fan of biology, however, all of this information is worth soaking up because it will help you understand what you will be growing in your home very soon.

Mushrooms are a type of fungus, belonging to the Fungi Kingdom, as was mentioned before. There are many different types of fungi (more than we could count), including molds and crusts, as well as more developed kinds that have caps and stalks. Fungi truly are everywhere.

They can be found anywhere on the planet: land, air, water, plants, animals… Whatever you think about, it probably has some particles of fungi in it. Fungi are different from plants because they do not have chlorophyll, which is the green pigment that allows plants to create sugar from sunlight, therefore, fungi need to absorb their food from the environment in which they live.

Fungi use fibers called hyphae (referred to as mycelium when they are in groups) to obtain their food. Remember that word, mycelium, because it will be discussed further along in the book. The mycelium, much like the roots of plants, can remain dormant under the ground for many seasons. Each hyphae that is sent out to the world slowly makes its way through earth, plant, and wood until it reaches the surface.

During its growing season, hyphae develop into a mature structure that will carry on its life cycle. The little structure that we see above the ground is what we know as a mushroom, and it is the part capable of producing and dispersing the spores needed for the hyphae to reproduce.

In a certain way, mushrooms are somewhat like the fruit of a plant, except the "seeds" it reproduces are millions of microscopic particles (spores) that form in the gills or pores underneath the mushroom's cap.

There are three main categories. Fungi can be *saprotrophs* , *mycorrhizae* , or *parasites* . Sapotrophs are known for growing through and consuming decaying matter; they feed on non-living organic matter. The word “sapotropth” comes from the Greek *aprós* (“rotten, or putrid”) and *trophē* (“nourishment”).

These organisms are considered critical and highly beneficial for decomposition and nutrient cycling. They are the premier recyclers of the planet; can you believe that? Their network of mycelium is designed to weave through the cell walls of plants; capable of breaking through anything.

They also secrete enzymes and acids meant to degrade large molecular complexes into simpler compounds. Basically, all ecosystems around the planet depend on the ability of fungi to decompose organic plant matter. This is one of the crucial aspects of life of Earth. The result of their activity is the return of carbon, hydrogen, nitrogen, and many minerals back into the ecosystem. If anything, we should all be thanking fungi for keeping us alive.

Mycorrhizal fungi is another thing we should be thankful for. “Myco” means mushroom, while “rhizal” means roots. This type of fungi create a symbiotic relationship with the roots of plants, and without them, most plants wouldn’t even be able to grow. The mycelia of this type of mushrooms invade the interior cells of host plants. This act is beneficial for both organisms.

The growth of the plant is accelerated because the resident mycelium causes an increase in the plant’s absorption of nutrients and essential elements. At the same time, by growing beyond the immediate root zone, the mycelium is capable of reaching nutrients from afar that it wouldn’t have been able to obtain otherwise.

Plants that count on this type of relationship with mycorrhizal fungal partners can also resist different diseases far better than those who don’t have one. Most ecologists have found that a forest’s health is directly related to the presence, abundance, and variety of this type of beneficial relationship between plants and mushrooms.

Last but not least, parasitic fungi also serve their own purpose to the ecosystem. Although at first glance they sound quite hostile and overall “dangerous”, parasitic fungi are quite interesting to study. There are even some mushrooms that fit in this category that are delicious, like the Honey mushroom.

Like you might imagine from the name, parasitic fungi live off a host plant, endangering the host's health as it grows, and they often kill it in the process. This doesn't sound beneficial at all, but the truth is that the ecological damage caused by this type of fungi is capable of creating new habitats for many other organisms. Therefore, always remember, nature never gets it wrong.

One of these parasitic mushrooms, known as *Armillaria gallica* , made national headlines in the United States when scientists discovered something quite mind-blowing. There is a single colony of these mushrooms in Michigan covering over 37 acres, weighing at least 220,000 pounds, and it is estimated to be around 1,500 years old. How crazy is that? And that's not the end of it. Washington State responded with reports of a colony of similar specie, called *Armillaria ostoyae*, covering around 2,200 acres which is at least 2,400 years old! Except for the trembling Aspen forests of Colorado, this fungus is the largest known living organism on the entire planet. A parasite, of all things!

So, as you can see, fungi have specialized in using their environments to find their food, and they have developed a wide number of ingenious ways to do so. To completely understand mushrooms and how they function, it is necessary to dive into its reproduction cycle.

This will help you understand it more fully how the mushrooms growing in your house will behave. So, without further ado, let's take a look into the life cycle of mushrooms.

The Life Cycle of Mushrooms

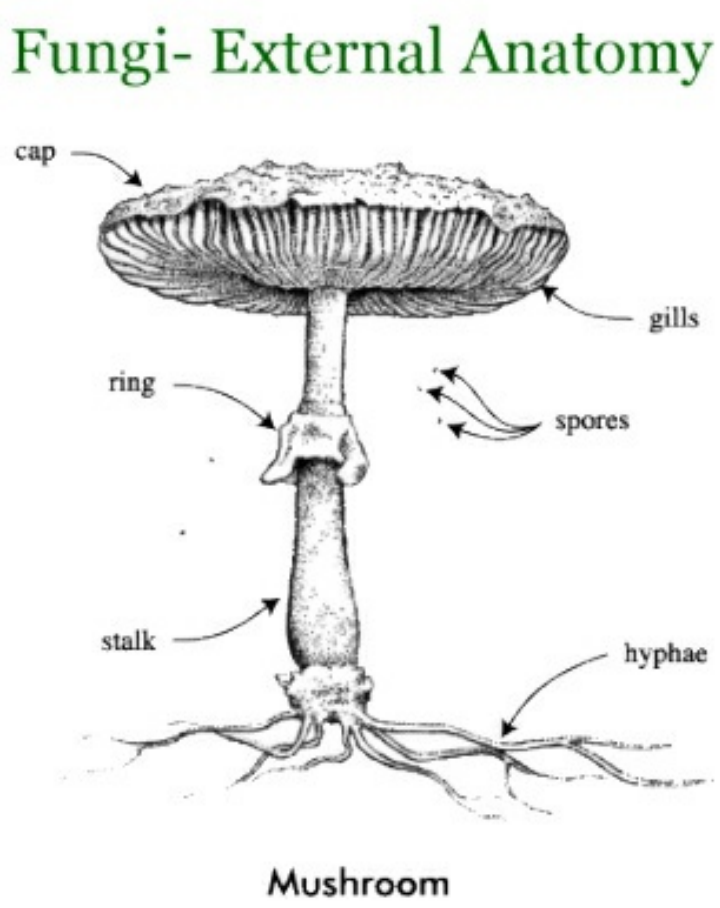
Even when mushrooms seem like a very simple crop, the truth is that quite a number of processes have to happen for the world to see that little mushroom body popping from the ground.

You might be surprised to find out that mushrooms are almost as picky as humans when it comes to finding a mate to reproduce (if not more than us) because indeed, mushrooms need to find compatible mates to carry on their legacy. How does this happen?

In humans, the egg and sperm are what is called “gametes”, which are defined as cells that have half the normal complement of genetic material.

As we mentioned before, fungi that produce mushrooms release a certain kind of spores, housed under the cap of the mushroom, which is often lined with gills. These spores are the gametes of the mushroom.

The first step of the life cycle of mushrooms is the **inoculation.** This process is initiated by the arrival of spores upon a growing medium (or substrate, but we will get into that later). If the conditions are ideal, the spores will germinate.



(Taken from freepng.es)

Therefore, **spore germination** is the next step of the cycle. Spores are pretty resistant on their own. They have a protecting shielding that will help them endure even the harshest conditions, remaining dormant. Once they feel comfortable enough, they will germinate and grow a primary mycelium.

This is where reproduction and mating occur. The primary mycelium needs to find for a compatible partner, another primary mycelium, to grow a fertile mycelium. This result is the one capable of producing aerial fruiting bodies.

When primary mycelia meet and create the “adult” mycelium, **mycelial expansion** begins; the next step of the process. This part is amazing for nature because the development of mycelium breaks down organic matter and absorbs all its nutrients from the surroundings.

During this stage, the mycelium grows at an exponential rate. During its

growth, it encounters many different threats and predators that are repelled by its incredible array of protective enzymes and compounds. So, in a certain way, we could say that the mycelium is the immune system of the mushroom.

Later, the **hyphal knot** begins to form. This stage refers to the hyphae growing into knotted structures. These are called “primordia”, or simply baby mushrooms. The **primordia formation** is the next stage where the organism produces an amazing array of enzymes and optimizes both the mycelium and the fruitbody development. The result is a tiny mushroom being born into the world.

After that, as wise as nature is, the organism selects the most promising few primordia for them to mature into full-grown fruitbodies. And this is the part where the life cycle meets with the things, we can see for ourselves. The **mature fruitbody** stage is where the organism channels all of its nutrients and energy to develop a beautiful fruitbody. This fruitbody is what we can see as the mushroom popping from the ground. All that remains is for the mushroom to absorb all the nutrients and water it needs to grow fully. This can happen rather quickly, which is why mushrooms can grow to full size overnight after a period of fresh rain.

This is all meant to reach the final stage of the mushroom’s life cycle: **spore release.** The fruitbody, which is our pretty mushroom, releases spores into the environment for propagation, and those who land on ideal conditions will germinate, as we discussed earlier. Therefore, the life cycle begins again!

Benefits of Growing Mushrooms

By now, you are probably a mushroom fan (hopefully!), and you totally should be, because they truly are a great addition to your garden, and most importantly, to your life. And really, what's there not to like? They have a very interesting life cycle, their use in human history goes back for thousands and thousands of years, and last but not least, they are delicious.

If you are reading this guide, then you probably have a general idea of why growing mushrooms can be beneficial for you, but we want to outline the exact ways in which having your mushroom garden in the comfort of your home can improve your life.

It is completely normal to wonder what the point of going through this whole trouble for a product you can find in a grocery store even is. Why get your fingernails dirty when you could just ride to the market and return with a clean package of mushrooms ready to use?

Well, these are all valid questions that we are about to answer for you because the truth is that there's more to gardening than just the final product, especially when it comes to mushrooms.

We have listed down below the main reasons why growing mushrooms is beneficial for you, and once you start doing it yourself, you will probably find some reasons of your own.

So, without further ado, let's dive into the benefits of growing mushrooms at home, and the different ways it can help you make your life better.

1. They are good for your health

Of course, this had to be the number one reason in this list, because it is one of the best attributes of mushrooms. We mentioned how many of us were raised with a certain stigma regarding mushrooms, believing them to be bad or poisonous until proven otherwise.

This might be true for some species, but the reality is that most edible mushrooms provide us with a whole list of medical benefits for our bodies.

This is not something new to humankind. Humans have been using mushrooms as a medicinal source since the beginning of civilization. Even penicillin is derived from fungi, how amazing is that?

Introducing mushrooms into your diet can bring you a wide number of benefits; including realigning your balances and strengthening your overall health.

Mushrooms are low in calories, have low sodium concentration, low glucose levels, high levels of key vitamins and nutrients, and also in protein and antioxidants. They are a health bomb in a tiny package.

They work slowly over time, working with your body's systems, so you will want to keep them around. However, this isn't the only thing they do. They have also been found to help to prevent diseases.

Recent studies have shown to help in the prevention of cancer. Over 100 species have been studied in Asia as a complementary treatment to cancer, being used alone or in combination with radiation and chemotherapy.

Shiitake mushrooms, for instance, contain sugar, lentinan, that has been attributed to slowing the growth of tumors.

They also boost your immune system, improving the levels and activity of vital immune cells. Lion's Mane mushrooms, for example, are capable of supporting brain health, as well.

This type of mushroom contains a substance called erinacine, which can catalyze the production of peptide in the body, reducing the effects of Alzheimer's and other neurodegenerative conditions.

And we haven't even mentioned how amazing having a garden can be for your physical and mental health. Tending a garden can allow your creative side to shine, all while leaving you a sense of pride and accomplishment by completing regular tasks and seeing quick, beautiful results. Besides, gardening can stimulate all of your senses.

It can bring you nice colors, smells, sounds, and textures, helping you relieve unwanted stress that you may not even notice you have, bringing you a much-deserved break from your everyday life.

Also, it can help you connect with nature, and give you a sense of appreciation for the world that can change your perspective towards life.

So, in short, if you want to improve your mental and physical health, all while growing your connection to nature, it is time to start growing your garden.

2. Better cooking

We have mentioned this a few times, but we'll say it again: mushrooms are delicious.

They are capable of bringing your meals different textures, flavors, and smells that nothing else can. By having mushrooms around, you will soon find out all the different ways they can be used inside the kitchen.

There are multiple recipes to which you can add your mushrooms to make them unique (later on we'll teach you some of these recipes, so stay tuned!).

Adding some fresh mushrooms to a regular chicken dinner will give it a whole new flavor, or maybe cooking a white pasta sauce with mushrooms and sausage.

The possibilities are endless – that's what makes them so amazing! By learning of all the different ways in which you can use your mushrooms to bring flavor into your kitchen you will soon find yourself wanting to try them all.

3. Fresh mushrooms available at any time

This is one of the best reasons and it goes hand-in-hand with the previous one. By having your own indoor mushroom garden, you are making sure that you always have flavorful ingredients at hand without having to race to the store first.

You can reach out and pick a few mushrooms and throw them into whatever you are cooking – from the ground to the dish in one simple step (well, without including the soil in the dish, of course).

Imagine cooking a regular dinner for your family and suddenly wanting to add something new to it. Wouldn't it be nice to simply reach out and grab some of your fresh mushrooms to make them part of the meal in just a few minutes?

It would be the perfect way to impress your family, friends, or even a date! There so many good recipes that include mushrooms out there and to think that we are missing out just because we don't have the right ingredient at hand.

Well, by growing your own mushrooms, that's not something you will have to worry about.

Besides, homegrown mushrooms are far superior to store-bought. Since they haven't had to sit in a box for long travels or in the store shelves for day after day, your homegrown mushrooms will be bigger, tastier, and fuller of nutrients. You can even grow them organically and avoid exposing yourself to any fertilizers or pesticides big companies might use.

4. Save money

This is one of the primary reasons why most gardeners turn to growing their ingredients at home, and it is simply because buying every single ingredient from local stores can get quite expensive. Mushrooms are not excluded from that.

It is not a secret for anyone that mushrooms can be pretty expensive in the market. Growing your own mushrooms is one great way to start cutting down expenses on your regular grocery shopping trip.

Look at it this way; no one would ever miss spending more to get the same mushrooms you can grow at home, but for worse quality. That's for sure.

Of course, you will have to make an initial investment if you don't already have all the equipment needed to start your garden, but once your garden is all set and done, you will start to notice how much money you can save in the long run.

Besides, if your objective with this book is to start your own mushroom business you will want to stop spending money on expensive mushrooms and focus on pricing your own!

5. Learn something new every day!

Nature is our oldest teacher. There is always something new that we can learn from the ground on which we stand. Gardening offers a vast number of interesting facts and very useful knowledge that can be of use for both children and adults. The Fungi Kingdom is also an aspect of our world rich of incredible information from which we can learn every single day, for years. The earth holds many secrets and tips that we can learn to improve our own skills and life. It can be a link between people that share the same passion, and it can help us teach the art of growing different plants to those who wish to learn.

It is never too late to acquire a new skill or to learn more about the soil in which we stand. There is always something more that we don't know but we can find out about if we make sure to pay attention.

For instance, if you didn't wish to learn more about mushrooms, you wouldn't be reading this guide, and you wouldn't know that gardening can help you prevent depression, for example.

That is something new that you can go and share with the people around you, helping you connect with them, and bringing a new piece of information to their lives.

Learning a new hobby can be very beneficial for our life, and if it has anything to do with gardening, even more so. Being close to the soil and its beautiful gifts can bring us closer to nature and to understanding the importance of caring deeply for this planet.

We hope that throughout this book you find yourself falling in love with nature as much as we have. It truly holds magnificent secrets that can help us lead a better life.

Growing Mushrooms: What Do You Need?

This book is a recipe on how to grow your own mushrooms, so before I give you the directions, I need to tell you which ingredients you will need. Imagine how awful of a teacher I would be if I just started with how to make a cake without first telling you the ingredients you should have prepared, and you would be forced to read the steps one by one and write down the ingredients yourself. That would be an inconvenience. So, we are not going to do that to you.

In this section, we will outline the equipment you will use to grow your beautiful mushrooms. There are many different techniques in which you can grow your mushrooms, so we will go into detail about the necessary equipment for each of them.

Mushrooms are fairly easy to grow once you have all the materials needed, that's why so many beginning growers out there are leaning towards them. So, without further ado, let's talk about the equipment you will need to grow your mushrooms at home!

- ✓ **Spawn**

Spawn is often thought of as the seeds of mushrooms, but this isn't entirely correct. Spawn usually refers to a sterilized grain of some kind that has been inoculated with mushroom culture, and the mycelium has worked its way through each grain, the result being individualized grains covered in mushroom mycelium. Look at it this way; the grain's real purpose is to "transport" the mycelium, making it able to be planted anywhere.

There are multiple ways in which you can obtain your mushroom spawn, and one of the easiest, fastest ways for beginners is to buy a ready-to-use Mushroom Growing Kit.

These kits come with easy directions and are a great way to get familiarized with mushrooms' growing process and to help you write down the different stages your mushrooms go through when growing.

These are relatively inexpensive and they can be quite useful. They are also one of the fastest ways to obtain a quick harvest since the mycelium is ready to grow the fruiting body at any time. They can be found on Amazon

and many other online stores!

(Taken from Etsy.com)

If you would like to start the process by yourself, you can also obtain some mushroom spawn to “plant” on a growing medium, similar to what you would do with the seeds of any regular plant.

There are multiples types of mushroom spawn that you can acquire; they can be bought from multiple companies, either offline and online.

There are a variety of options and the quality varies greatly, so make sure to do some research before purchasing so you can compare prices, quality, and company reputation.

Any material with mycelial growth used to propagate mushrooms is called spawn; however, you will find that most of the time, spawn comes in one of these forms:

- **Sawdust**

The sawdust is usually made out of some type of hardwood with pieces that are not too large nor too fine. Sawdust spawn is a sterilized sawdust that has been inoculated with mycelium. This type can be used to inoculate a variety of substrate (or growing medium, but we will get into this in a moment).

One of the main advantages of this kind of spawn is the size of its particles. The fact that they are small and numerous gives way to higher inoculation points for the mycelium to grow into the substrate. This means

faster colonization with less time for contaminants to take over.

However, its biggest disadvantage is that it isn't as nutritious as you would like. That is why you might be a little disappointed in your yield if you grow your mushrooms from sawdust spawn alone.

- **Grain**

This is one of the most used methods; grain spawn is much more nutritious compared to sawdust and they can be used to inoculate a wide number of substrates.

Grain spawn is simply sterilized grain that has been inoculated with spores or sterile culture of mycelium. Many different types of grain work great as spawn, including corn, wheat, rye, brown rice, white rice, wild bird seed, and even popcorn.

However, the most common type of grain used is Rye, due to its water-absorbing qualities and nutrients. Besides, mushrooms seem to get along with it nicely.

Grain spawn can be used to create sawdust spawn, more grain spawn, or inoculate all sorts of substrates. Grains' advantage is that they are way more nutritious than sawdust, but one thing that you should consider is that they are not the best option when it comes to outdoor growing, given that they are extremely appealing to birds and rodents.

- **Plug or Dowel**

Plug spawn is a bunch of small wooden dowels that have been inoculated with mycelium. This can be achieved by using sawdust spawn, or even with stems of live mushrooms.

A point in favor of plug spawn is that it is great for inoculating substrates made from wood or even fibers. It can easily colonize cardboard, paper, stumps, wood chips, and the most common, logs.

However, it isn't as great when it comes to colonizing straw or grain-based substrates, so that is something you might want to keep in mind.

Other types of mushroom spawn include woodchip spawn, which is made from woodchip from a variety of hardwood. Straw spawn; made with pasteurized straw. And even liquid spawn, which is water enriched with mushroom spores or mycelia slurry.

It is also possible to **inoculate your own spawn** , starting with purchasing

a viable mushroom culture, either in agar or in a liquid culture syringe. However, this method is quite tedious and slow for beginners who are simply looking to learn how to grow mushrooms at home.

It requires petri dishes, a sterile environment, and turning one of your rooms into a growing lab. At first, it might sound exciting, but it can turn into something stressful after a while; besides, it adds a lot to your workload.

So, for now, we are going to keep it nice and easy for you and tell you that the best option to start this process as a beginner is purchasing mushroom spawn from a good company.

✓ Substrate (Or Growing Medium)

Growing mushrooms is a lot about having the right materials, and substrate is a great example of it. Finding the perfect substrate for your mushrooms – and finding the perfect recipe – is one of the most important aspects of mushroom growing.

You can think of substrate as somewhat analogous to the soil for a plant, but the truth is that it is quite different, and once you start growing your own, you will soon find out how. Understanding this is key to achieving the best results possible.

(Taken from unsplash.com)

But what is a substrate? To put it in simple words, substrate is a bulk material that mushrooms mycelium can use for energy and vitamins. A good substrate is needed for good mushroom growth.

The substrate needs to be correctly prepared by adding the right amount of water, potentially adding further nutrition, and in some cases, going through the processes of pasteurization and sterilization.

The substrate is supposed to be inoculated with mushroom spawn, allowing the mycelium to grow and expand throughout the entire material, rapidly devouring the organic material. This process is called “colonization.”

We have mentioned a couple of times how mushrooms need sterile environments to grow. However, we haven't explained why. The ideal mushroom substrate needs to be moist and full of nutrition.

However, mushrooms aren't the only organisms that thrive in this kind of environment; molds and bacteria also do. These contaminants grow way faster than mushroom mycelium, so by **pasteurizing and sterilizing** the substrate you are giving mushrooms a head-start in the race against other colonizers.

Pasteurization is the process of heating a substrate between 150º F and 180º F (65º C – 85º C) for about 1.5 to 2 hours. It doesn't remove all contaminants present, but it will reduce the overall population, helping mushrooms take the lead in the race.

Additionally, sterilization is the process of heating the materials to extreme temperatures, exceeding 250º F (120ª C), ideally under pressure, in an attempt to eliminate any other contaminant in the substrate or material to eradicate the threat for your mushrooms.

It is possible to buy the substrate sterilized and ready to go, although it might be a bit more expensive than you would like to. If you want to save some money, you will have to do the pasteurization and sterilization yourself, when required.

Now, let's get into the different varieties of substrates out there. There are many options to choose from, although some species of mushroom grow better in certain kinds than in others. We will outline the different requirements for each of them once we discuss the types of mushrooms you can grow at home easily. Here are some of the most used substrates for mushroom cultivation.

✓ **Straw**

Straw is commonly used to grow Oyster mushrooms, one of the easiest specie to grow for beginners. Straw is cheap and effective, although it can be quite messy.

Non-supplemented straw is one perfect example of a substrate that needs to be pasteurized. It is a growing medium that is nutritious enough for mushrooms to grow, but not enough for it to be completely sterilized.

You can pasteurize the straw by subjecting it to steam injection or by giving it a bath of hot water. Both methods are great to moisten the straw. After it cools down and drained, it can be inoculated with the mushroom spawn.

(Taken from unsplash.com)

✓ Hardwood Sawdust

Hardwoods such as oak, maple, and beech are great substrates for mushrooms. Many different species prefer growing with hardwood due to its nutritional content, especially when combined with bran supplements.

They also offer a sustained fruiting period for a long time. However, if you sawdust has not been previously sterilized, you will have to do it yourself, and this requires some additional equipment, such as an autoclave, so you might want to try this one out after you have some experience with the growing process.

✓ Logs

Have you ever seen a little mushroom growing from a tree? If you haven't, that's okay; we are going to say it anyway: wood logs can be used to grow mushrooms as well. A log is just a cut piece of a tree. It doesn't need a long process to be inoculated, and it doesn't even need to be sterilized.

However, it should be cut from a living, healthy tree to work. It should cut live rather than use any fallen branches because dead wood, or diseased trees, might already have some fungus growing in it.

They need to be kept in a dark, humid place after cut for several weeks (less than a month) to be prepared for the mushrooms. They need to be healthy to fight any fungus already trying to colonize it, but by keeping it in a humid place, you are giving it some time to die before inoculation your mycelium. Oyster, Shiitake, Maitake, Lion's mane, and other types of mushrooms can be grown in logs.

✓ Soy Hulls

Soy hulls can be mixed with hardwood sawdust at different ratios to produce an incredible substrate capable of large yielding and effective growth.

This is known as the Master's mix, and not for any reason. The original master behind this mix is T.R. Davis from Earth Angel Mushrooms. It is highly unlikely to find another substrate that will yield as much on the first flush as this mix.

However, there are two main disadvantages to this substrate. Starting with the fact that the second flush won't be as big as the first, even though the huge amount of the first round should make up for that.

Secondly, some people report that the mix doesn't colonize as fast as the original sawdust formula, but that may vary from person to person, so it will depend on your personal experience.

✓ Coco Coir and Vermiculite

Coir is a mix of ground-up coconut husks and shells that is commercially available. It can be mixed with vermiculite to create a very good substrate for your mushrooms. It used for quasi-hydroponic plant growing systems. It is quite famous for the growing process of Microgreens, for instance. It does a fabulous job of retaining large amounts of water, and although it isn't quite as nutritious as other substrates, it provides it with the advantage that most contaminants won't proliferate easily. It is commonly mixed with vermiculite in a 1:1 ratio.

Vermiculite is an expanded mineral capable of retaining water and providing structure to the mix, although it has almost zero nutrients. Still, this mix needs to be properly pasteurized before being inoculated with mushroom grain spawn. You can buy coco coir on Amazon. Note that it will expand its size once it is soaked in water and broken apart.

✓ Manure

Common button species like white button mushrooms can be grown on composted manure, which must be specially prepared using a two-phase composting and sterilization process.

Firstly, it needs to be composted, putting together large piles of manure and straw and let it naturally heat up to 160º F (70º C), where beneficial organisms proliferate.

After that, it needs to be pasteurized before being used to remove all unwanted contaminants. This process is not often used by beginners, but it is possible. Manure can also be purchased sterilized and ready to use!

✓ Coffee Grounds.

This is a personal favorite for many mushroom growers due to its many advantages. When a coffee cup is made, more than 1% of the coffee biomass ends up in the cup. Did you know that? There are over 9 billion kilos of coffee beans being produced each year.

After all that energy and power in producing so much coffee, most of it

goes to waste. This huge amount of nutrient-packed coffee is a substrate in which Oyster mushrooms love to grow.

The great thing about growing with used coffee grounds is that most of the time you won't need to sterilize it. It has already been brewed, which means that they have already been pasteurized. You can completely skip that energy-draining step and simply jump on the fun part of growing mushrooms.

It is also simple to get started since all you need to do is mix it with the spawn with the correct amounts, put it in a vessel (which we will discuss later), and wait for it to grow.

However, there is always the risk of contamination, so you will need to watch out for the signs of mold and other bacteria that may affect your mushrooms. Some people recommend sterilizing the coffee grounds despite it being brewed in the past. Some others acknowledge its large nutritious content, but use it only as an addition for other substrates.

Also, some substrate recipes combine coffee grounds with vermiculite to improve the performance. In the end, it will all come down to whatever works best for you. The best thing you can do is try out different methods, substrates, and species and see how it goes! Later on, we will explain how you can reuse your spent substrate to produce more mushrooms.

(Taken from pixabay.com)

✓ Vessel

Your mushrooms need a home, or a comfortable place, to grow. Similar to the pot in which we plant herbs or other plants, mushrooms need their own "pot". However, this pot can vary widely depending on your resources available, the kind of substrate you are using, and the mushroom specie you would like to grow.

In this section, we will list the different types of vessels you can use and how you can make the most out of the materials you already have at home. Maybe you are looking at the next vessel for your mushrooms – you just don't know it yet. So, let's begin.

(Taken from Urbanspore.com)

❖ 5-Gallon Buckets

This is one of the favorites. Growing mushrooms in buckets is simply very easy and recommended for beginners. All you need is your mushroom spawn, substrate, a bucket, and a drill. It is a great project that will do itself. You will need to drill some holes in the plastic to allow your mushrooms to grow.

They don't have to be big, instead, a small hole will do, even if you don't find that easy to believe. You can use pasteurized straw or woodchips as a substrate and inoculate it with Oyster mushroom spawn.

Put the lid on and leave it in a dark, humid place for a few weeks. After that, the substrate should be inoculated and your mushrooms will begin to grow. It is easy, convenient, and clean.

❖ Mason Jars

Mason jars are commonly available—you might even have some available around your house right now! They are a good option for growing mushrooms at home, especially if you are just starting out.

Remember that mushrooms need a clean environment to grow, so the best thing will be to clean them thoroughly with hot water and soap, and to sterilize it before filling it with the substrate.

After that, a good way to start is by choosing sawdust as a substrate. It is easy to handle and it will do a great job overall. You will need to prepare the substrate accordingly and fill the jar with it. Bore a hole with a wooden spoon down the middle of the sawdust, making sure it goes all the way down to the bottom. That hole will have to be filled with the spawn, helping the mycelium work from the center outwards.

The lid will also need to be modified for the mushrooms to get some fresh air. The best way to do this is by drilling a hole in the middle of the lid, it can be a ¼ inch hole. Add some pillow stuffing through the hole to create a filter. This will help quite a lot! Using this vessel is a great option, although note that not many species will grow with this method.

❖ Mushroom Grow Bag

This is a widely used method, even though it is not the most "environmentally friendly". When we say mushroom grow bag, we are referring to g*usseted autoclavable polypropylene filter patch bag*, which

isn’t as nice as just saying grow bag. Let me explain what each of these terms refers to.

Gusseted is simply the way the bag is folded, which is with the sides of the bag folded flat towards the inside. Autoclave means that the bag is capable of resisting high temperatures, perfect for sterilization. Polyproline is the material the bag is made of, which is a thermoplastic that won’t melt easily.

And finally, the filter patch refers to the filter on the front of the bag that allows the mycelium to receive fresh air without letting contaminants pass.

- **Trays**

You can also grow mushrooms on trays, but it will heavily depend on the type of mushroom you are growing. Your tray will need to be kept in a dark, damp location, and covering it with a plastic bag or wrap is great to retain the moisture.

Make sure you are certain which specie can be grown on trays. Later on, we will outline different species of mushrooms and the conditions needed to grow them, so stay tuned.

- **Plastic containers**

Clear plastic bins or totes are also a good choice for many beginners. They allow you to have good space and area for your mushrooms and you can see the process of the mycelium in the inside.

They usually come with handles, making it easier to be handled. Also, they have the advantage of tight lids that will help keeping the moisture.

You will need to drill a few holes on it to let the air circulate freely for your mushrooms. After filling it with the substrate and spawn, leave the container in a dark room in your house where it receives little to no sunlight.

Check every once in a while, for two weeks to make sure your substrate doesn’t dry out. You can take a spray bottle and spray the lid of the container on the inside to add some moisture.

- **Laundry baskets and more vessels.**

You can even grow mushrooms in unused laundry baskets that you already have around your house. This vessel works because the holes it already has allows the mycelium to breathe and later on, it allows the mushrooms to

grow freely.

You will need to sterilize the basket before using it, and to do that you can take a spray bottle with 10 parts water and 1 part of bleach and spray the entire basket with the solution; the outside, inside, and bottom.

Wipe it down with a clean cloth and then wipe it again with another clean cloth soaked in hot water. You can grow Oyster mushrooms in it using pasteurized straw as a substrate.

You will need to keep it in a dark, damp place in your house. Before placing the basket anywhere, make sure to repeat the procedure with the bleach solution in the area where the basket will be.

You can even use biodegradable vessels like cardboard boxes and burlap sacks, although this might end up being eaten by the mushrooms as well, so be careful. Other possibilities include Styrofoam coolers, plastic feed bags, gloves, perforated metal boxes, and more.

The golden rules you need to remember is that whatever vessel you intend to use, it will need to be cleaned thoroughly, and even sterilized, before using it. Additionally, it will be best if it can resist moisture since your substrate will always need to remain damp to grow mushrooms.

Make sure to try out different vessels and see what works best for you. The goal here is to make things easier for you during the process, so that should be your aim.

(Taken from urbanspore.com)

✓ Water

Shocking news: nature needs water to thrive. Yes, we know; we have mentioned how much moisture mushrooms need to have to grow, but it is still necessary to bring it up. Your mushrooms will desperately need your substrate to remain moist during the entire process, right from the beginning.

This is why it is crucial to choose the right location to keep your vessels. Your substrate should not dry out, that will only result in fruitbodies with bad shape, odd colors, and overall not good – considering they even grow at all. Therefore, you need to make sure you can provide the ideal conditions for your mushrooms to grow nice and easy.

To help you keep your mushrooms moist, but not soggy, you can obtain a **spray bottle** and use it to water your substrate every once in a while. You probably already have one sitting around your house; however, make sure to clean it thoroughly to avoid getting any harmful product onto your substrate.

✓ Heating pads, fans, and thermometers

We have covered the basics of mushroom growing equipment to get you started, but now we are going to outline the items that can help you keep a controlled, clean space to help your mushrooms become all that they can be.

We have mentioned several times how mushrooms love to have certain growing conditions to thrive. One crucial aspect of this is **temperature** . Mushrooms need to be in a cool, dark, damp place initially to help them with the process of colonization.

Too high or too cold temperatures are capable of ruining that process. Keeping the temperature between 60º F to 70º F (15º C to 21º C) works great for many species.

Therefore, if you live in an area with unpredictable weather or where winter will eventually come, we recommend having a **heating pad** around. Heating pads are great because they help you moderate your substrate's temperature at all times.

On the other hand, if you live in a rather hot area, you might want to consider using a fan in your growing room to make sure you maintain a good temperature for your mushrooms. However, don't blow it directly to the substrate; we don't want it to dry out too quickly.

Most heating pads have their own thermometers to help you measure the temperature; however, if you do not need a heating pad for any particular reason, you can still make the best out of a **thermometer** . As we said, mushrooms need a certain temperature to grow.

The only way to be sure you are providing that temperature for them is by using a thermometer every once in a while. Besides, some of them even bring a humidity meter. Some mushroom species need a certain percentage of humidity to grow, which is why this is a great addition to your equipment.

- ✓ **Pressure cooker**

Remember we said how important it is for your mushrooms to grow in a sterile environment? As we mentioned earlier, any additional contaminants present in your substrate or vessel will slow down, or even stop completely, your growing process.

A **pressure cooker** can help you sterilize all kinds of items to help you maintain a completely clean working space and environment for your mushrooms. This isn't entirely necessary since many different growers recommend using alternative methods, like simply boiling the equipment in regular pots.

However, counting with one of these is a great addition to your growing process. So, even if you don't acquire one right now, make sure to keep it in mind for the future.

✓ Additional equipment

We have covered the essential equipment; however, there are certain items out there that will help you maintain better control of your working space and growing process.

One of these things is **sterile gloves.** You already know by now how important it is for your mushrooms to grow in a contaminant-free space, so working with sterile gloves can keep you from hurting your substrate with your hands.

However, this isn't entirely necessary, just make sure to wash your hands thoroughly with soap and warm water before you handle your mushrooms.

Plastic wrap is another item many growers use to help them maintain a moist environment inside their vessels by wrapping the plastic over the container.

This is a good thing to you if you are working with anything that doesn't have a lid on it, like a tray, but unnecessary if you are not. Still, make sure to keep some available in case you ever need it.

When your mushrooms are all grown up and ready for harvest you will need something sharp that can make delicate cuts; therefore, you will need to have a **knife or scalpel** available.

We will get into further detail about harvesting later. For now, make sure you count with sharp knives or any scalpel to help you later on.

In the end, the type of equipment you get will depend on what you are looking for with your mushrooms. Growing mushrooms at home is supposed to be a fun, enjoyable activity, so don't stress over having the best equipment; once you have a little more experience you can begin to think about expanding your growing tools.

If you are thinking of starting a homegrown mushrooms business you will probably need some additional equipment, but we will get into that later. For now, let's focus on improving your mushroom growing technique and help you become an expert on the matter. You can do this!

What You Need to Know Before Starting

We are getting closer to the part of this book that you have been waiting for – how to grow herbs step by step. However, before we begin to explain how to grow mushrooms, there are certain aspects of the process that need to be considered to achieve the best outcome possible.

That is why we have created this very special section before moving on to the step-by-step we have promised.

If we skipped this part and jumped right into the practice, we would leave you with some unanswered questions that you may not even think about right now, but you will, sooner or later, which is why we need to be the great teachers that we are and get ahead of your curious questions.

This will help you grasp a better idea of the process as a whole and the different factors that can affect it greatly.

So, without further ado, it's time to dive into the different variables you need to consider before starting the process of growing your mushrooms at home.

The Conditions Needed to Grow Mushrooms

By now, you probably have an idea of the different factors that play a role in the growing process for mushrooms. The truth is that each variety of mushrooms will have its own special growing conditions, but in this section, we will outline the general aspects needed for any growing process to happen.

Later on, once discuss the different species out there that you can grow, we will go into further detail on specific growing conditions.

As you may know by now, mushrooms are quite different from plants and vegetables, and their differences are reflected in their growing processes. The important thing here is to take the time to understand each variety and what exactly they will ask from you.

- ✓ **Light**

Most indoor plant growing systems are required to have some sort of

artificial grow lights set up to provide sufficient light for the plants. One great thing about mushrooms is that, in most cases, they will save you from the headache of choosing (and investing) in full-spectrum grow lights, because they don’t need light to grow, most of the time.

Mushrooms don’t have the capacity of extracting food and energy from sunlight as regular plants do, so they do well without light in their lives. However, they don’t necessarily need to remain in a completely dark place to grow. Some species will appreciate some amount of light to grow naturally, the same way they would receive in the wild.

So, yes, many of them do well with some light; but it just isn’t necessary for their growing process. The advantage of growing mushrooms in the dark is that darkness is capable of preserving the moisture the mushrooms need to reproduce and release their little spores.

Direct sunlight can be harmful because it may dry out the substrate, stopping the whole growing process. Some species require partial shade, but most of them will not need direct sunlight to grow.

For example, mushrooms like Buttons will love to be kept in a dark, cool place, while Oysters, Shiitake, and Lion’s Mane all will appreciate a little bit of light during their fruiting stage to help them develop large caps.

✓ Temperature

As we have mentioned multiple times, the temperature of the area where you will be growing your mushrooms is crucial for their development. Temperature is capable of maintaining the correct amount of moisture in the substrate and humidity in the air surrounding your mushrooms.

The temperatures mushrooms generally need for their growing process falls within 50º to 80 º F (or 10º to 25º C). During the colonization process, when the mycelium is spreading over the substrate, is capable of handling a wider range of temperatures.

It tends to be more forgiving because the mycelium is only spreading, not producing mushrooms. Usually, colonization can be done at room temperature, although it will depend on how cold or hot the room gets.

The ideal temperature for when the growing process begins the fruiting stage – the part where the mushroom begins to form in the substrate – is much more specific for each type.

To make sure the specie you are growing is capable of thriving in the temperature you are setting, double-check the special needs for the mushroom you are trying to grow.

✓ Nutrients

As we mentioned earlier, mushrooms synthesize the nutrients they need from the substrate in which they are growing. The specific nutrients they need are sugar, starch, lignin, fats, protein, and nitrogen. Which organic material works best will vary depending on the variety of mushrooms you will grow. For example, Button mushrooms love prepared compost substrate.

✓ Moisture

Yes, we know, this is getting repetitive; but when we are discussing optimal growing conditions for mushrooms, we cannot ignore this one.

You already know this, but we will say it again just in case: mushrooms need moisture to thrive.

Some mushroom species are capable of growing on logs, like Shiitake; however, during dry spells, the logs need to be completely soaked in drums of water to maintain the appropriate amount of water and moisture needed for the growing process.

This is how crazy mushrooms are about their moisture – don't take it away from them.

However, here's the tricky part. If the substrate is soggy or soaking wet, it will also hurt your mushrooms.

You might find yourself with a bacteria problem, or your mushrooms simply won't grow.

Therefore, make sure you keep your substrate moist and cool – your mushrooms will appreciate it.

✓ Humidity

Before you even think about it; no, moisture and humidity are not the same. In basic terms, humidity is a measured percentage of the amount of moisture present in the air, regardless of the temperature.

In short, moisture refers to the amount of water in liquid state present in your substrate, while humidity if the percentage of water in vapor state present in the air.

Warm air temperatures are capable of holding more moisture in both the air and substrate than cold temperatures; however, hot temperatures are capable of drying it out. This is why being aware of optimal conditions is so important to grow excellent mushrooms.

✓ Airflow

We have mentioned before how it will be beneficial to your mushrooms to drill holes in your vessels or plastic wraps, and this isn't just for any reason. Mushrooms need a good flow of fresh air to thrive.

That is why it is crucial to have them in vessels where air can come and go easily to exchange CO_2 with oxygen and help your mushrooms grow healthy.

The conditions you will need to grow your mushrooms are the key to choosing the right location inside your home. Anyone who doesn't know this could simply purchase a mushroom growing kit and place on the windowsill in the kitchen where it will receive full sunlight during the day; considering what you know now about mushrooms, you are capable of understanding why this wouldn't work and why no mushroom would grow

from that kit.

Overview of the Cultivation Process

When you grow mushrooms at home, you largely mimic the life cycle that mushrooms go through in the wild, but with some key changes that will help you maximize yield and other factors. To help you understand a little better how the life cycle of mushrooms is recreated during the home growing process, we have broken it into three main steps.

There are many different growing methods, which we will get into later, but they all have one thing in common: every growing method needs to follow this cultivation process to be successful.

So, what are the three stages that your mushrooms should go through to grow nice and strong?

1. Germination

We mentioned earlier how the first steps of the life cycle are inoculation and spore germination, giving way to the development of mushroom growth. Therefore, we can sum up these two stages under the name of Germination.

Here, spores find a suitable growing medium (substrate) and begin to grow their very first mycelium. Later, mycelium begins to colonize the substrate.

The amount of spawn inoculated into the substrate can greatly affect the duration of the colonization, and therefore, the time it takes to develop a fruitbody.

During this stage, substrate moisture content should be between 60 and 75%. Moisture contents below 40% can result is slow mycelial growth, which we are trying to avoid.

The water content of the substrate will gradually decline from the initial inoculation. For example, the water content of straw at inoculation is nearly 75%.

After the first flush, it goes down to 60%. Moisture loss must be controlled

and limited to help mycelium produce healthy mushrooms – which are 90% water themselves! During this period, it is the grower's job to maintain the right amount of moisture for the cycle to remain at its top potential.

Keeping a good level of humidity in the air during this stage can do wonders for your substrate.

Also, temperatures higher than 95º F (35º C) can be harmful to your germination stage, because it might awaken some thermophilic competitors, like black pin molds. Make sure to keep nice temperatures during the germination process to avoid dealing with contaminants.

2. Expansion and Primordia Formation

Once the mycelium expands and colonizes the entire substrate, the primordia will begin to form. Primordia are also known as “baby mushrooms”, but really, they are formed by hyphal knots, which refers to the hyphae growing into knotted structures. These structures release enzymes that will help the full body of the mushroom develop in full.

During this stage, it is recommended to change some environmental factors to improve growth. One of these factors is moisture. Yes, as you can see, we keep on proving why moisture is a big deal for mushrooms.

During this stage, it is recommended to keep high levels of moisture, around 90%. Couple this with a constant, controlled rate of evaporation and you will be on the way to producing beautiful baby mushrooms.

Once the little structures begin to form, a gradual reduction of humidity will be appreciated, from 90 to 85-80%.

Air exchange is also a major factor. It should be introduced to lower levels of CO_2 , making sure your mushrooms get enough fresh air to grow nicely.

Temperature is also essential here. Bringing air temperature to the correct levels for each species can be the difference between success and failure is mushroom growing. During this stage, even lighting can play a good part.

In nature, light tends to act as a signal to alert mycelium to an open-air environment where fully-formed mushrooms can spread their spores. The ideal light conditions vary depending on the variety of mushrooms; however, direct sunlight of high-intensity exposure can is harmful to your mushrooms, so make sure to keep that in mind.

3. Fruitbody Development

As you are probably imagining by the name, this is the stage where all your efforts pay off and you can finally see the results of your hard work.

The fruiting stage is where the whole mushroom body is formed and visible, getting closer to harvesting with each passing day. While your mushrooms are growing and getting bigger, moisture needs to be carefully managed.

This is meant to help mushroom development, but to keep it from giving an advantage to any competitors, ruining all your hours of hard work.

While in the previous stage the humidity needed to be kept at high levels, in this stage it should be lowered.

The crop should be sprayed many times a day, but only as long as the mushrooms, the substrates, or the air soon reabsorbs the excess of water. This dynamic process of replenishment and loss is one of the keys to obtaining the best crops.

In addition, the humidity of the room should be reduced several hours before harvesting your first mushrooms. This will help you extend the life of your crops away from the comfort of the substrate. Good airflow is needed for the benefit of the mushrooms, in a way of reducing carbon dioxide levers, elevating the amount of oxygen, and effecting the constant evaporation of excess moisture.

Temperature levels can either remain the same or can be raised to achieve faster growth. After the primordia formation, the temperature can control the speed of the fruitbody development.

One advantage of leaving cooler temperatures is that a firmer-fleshed mushroom will form; however, it will take longer. Lighting is another factor that needs to be considered.

Some species, without adequate light, can experience some malformation of the cap or stem elongation. Either too little light or too much can affect your harvest, so it is necessary to take into consideration the different necessities for each variety.

However, it is important to note that growing mushrooms can vary from person to person. The different variables and factors included in the cultivation process can work differently for you than it would for the next grower. Just keep in mind that the best thing you can do is keep track of every single detail about the growing process – anything that can help you improve for the next one.

This is extremely important especially if you are thinking of growing mushrooms for commercial use. You should always aim for improving your crops by improving the overall process. Trial and error are key to become your best grower version and impress your clients. We will get into that in further detail later.

Now that you have a better idea of the crucial aspects that play a role in the cultivation process of mushrooms, it is time to take it a step further and discuss the different places in which your little mushrooms can grow. So,

without further ado, let’s dive in.

(Taken from unsplash.com)

The Best Places to Grow Mushrooms: Outdoors or Indoors?

Choosing the right location for your mushrooms is an essential step in the process. If you are not sure what the best place can be, don't worry – that is what we are here for. So, let's discuss the different locations in which you can place your mushrooms to watch them grow nicely.

So, where should you grow your mushrooms? We can't choose for you, but we can make the decision easier. There isn't a right or wrong answer here – it will all depend on what you are looking for, and the kind of mushroom you wish to grow.

Different mushroom species will react differently to their growing environment in a big way. For example, Blue Oyster mushrooms require plenty of fresh air to produce large fleshy caps, which can be a little harder to provide indoors, whereas Lion's Mane grows just fine with higher levels of CO_2 , which is one less thing to worry about if you are growing them inside your house.

When you are just starting, you probably just want to learn about the growing process of mushrooms, as quick and easy as possible; and really, that is the best path you can take. If this is the case, growing indoors is the most attractive option.

It can be fun to be able to see how your little mushrooms grow under controlled conditions, and it can be educational, too. Growing indoors also means that you will have to choose a certain space that counts with all the right characteristics.

Remember most of them thrive in dark, damp, cool places, which is why many growers tend to use their basements as their growing rooms, although an empty closet or a cabinet under the sink can work as well if you are planning on starting with small production.

One or two growing bags can be tucked away anywhere easily enough, and a 5-gallon bucket can be moved around if you need to, same as a row of mason jars near a window or inside a cabinet. These are all easy-to-handle vessels that can work great in an indoor production. Or maybe, if you are thinking of growing mushrooms in – let's say – a laundry basket, you can simply leave it in a dark corner of the garage and check on it regularly.

But again, you will need to look into the requirements of the specie you want to grow to make sure they receive the right amount of air or partial light. In the end, it will depend on your level of expertise, your space and resources available, and the number of mushrooms you would like to cultivate. Our best advice, if you are just a beginner, is to start small, with just one bag or bucket, and work your way up.

Running a larger production indoors can be a little trickier at first. You will need to provide sufficient space and ideal growing conditions, such as temperature, moisture, air exchange, and more. Additional equipment might be needed, like shelves, humidity sensors, thermometers, and so on. Another downside for indoor growing is that it can produce around 2 to 3 flushes out of one cultivation vessel, and then you will need to start over. You will need to replenish the substrate, mushroom spawn, and start the process all over again.

The harvest is quicker and abundant, but they won't reproduce year after year without some effort and investment. However, this is nothing to be alarmed by. That's just how most businesses in the world work, so don't let that scare you.

Outdoor growing also has some good advantages. There are even visible differences between mushrooms of the same specie grown indoors and outdoors; in flavor, shape, and color. In the end, growing indoors is simply trying to imitate what the mushroom goes through in the wild, so it is normal if sometimes some conditions aren't completely perfect and less-than-beautiful mushrooms end up growing from your plastic bags.

The thing about growing outdoors is that sometimes the process can be more enjoyable. The fact that you don't have to worry about every single detail and ideal conditions makes the experience easier and stress-free. T

he expectations can be a little lower, taking the pressure off the grower, and sometimes you are not all that concerned whether the mushrooms will turn out well or not – but the thing is that they usually do. Most species simply love growing outside; and of course, how couldn't they? That's their natural habitat. Besides, fresh air does wonders.

However, you will still need to take into consideration some factors if you want to grow outside, like the place you will locate your substrate. You will need to consider the weather, the amount of sunlight it receives, and the potential threats. Growing outdoors means you will have to wait for the ideal season to begin growing your mushrooms.

It will depend on where you live, but normally, spring and fall are the best

seasons to grow mushrooms. Maybe even in mid-summer, but if the temperatures are too high, you will have to take extra measures to make sure your logs remain moist enough, or you can try your luck with tropical species of Oyster, for example, like Pink Oyster, which thrive in rather warm temperatures.

The thing about growing outdoors, as we mentioned earlier, is the constant threat of enemies. For example, bugs love mushrooms, and they will try to get to yours before you can have a say in the matter. You will need to pay special attention during the whole process to make sure everything goes well, and you will want to harvest your flush as soon as possible.

If you are just starting, and you have a good amount of land, you can try your luck with both outdoors and indoors growing and see how it goes for you. Outdoor growing can be less expensive, and the yields can come back year after year.

Some species will take longer than others, and you can learn from both methods to improve your performance. Nothing is stopping you from inoculating a few logs while simultaneously growing mushrooms in a bucket in your basement. You can even use that to compare results and see which method is better for you.

Remember that this is supposed to be an enjoyable, educational process, so make sure to go easy on you. Take your time to get to know the requirements of each species and choose the one that you are more curious about.

Usually, the friendliest species to grow for beginners are Oyster, as you may have noticed, Shiitake, Lion’s Mane, and more. We will get into different varieties and their growing conditions later on to help you choose.

For now, just be objective about the amount of space and resources you have available, and let yourself try something new that will improve your life in many different ways. Whether you choose to grow indoors or outdoors (or both) we know you can do this!

How to Grow Mushrooms?

The process of growing mushrooms is a beautiful thing. It is capable of bringing you closer to nature, besides teaching you how you can control the environmental conditions to create life.

This type of skill has been crucial for the settlement of cities ever since the beginning of our history, and to accelerate the evolution of humankind. So, yes, it can be pretty amazing.

However, it can be a little tricky to get a hold of it, and even the most experienced growers sometimes struggle with details of the growing process.

We are here to give you enough insight to help you navigate this ocean with come clarity, although most of the time, you will learn quite a lot from trial and error.

Don’t be discouraged of growing your mushrooms by the thought of it being just “too much work”. It might seem like it, but the results are completely worth it.

Therefore, let’s dive into the most important aspects of growing mushrooms, and how you can make it happen from the comfort of your home.

Keeping a sterile environment

Earlier in the book, we mentioned how important it is for your mushrooms to grow in a contaminant-free environment. This is especially important during the inoculation stage, where your mycelium is the most vulnerable.

It is quite impossible to recreate a completely sterile environment, but what we are going to do is try to bring the odds of our mushroom fruiting to our favor.

As we mentioned before, the world is filled with bacteria. All sorts of it. Bacteria, molds, and other microbes in the air are all waiting for a nice place to inhabit. There are certain steps we can take to fight them before they get a chance to ruin your harvest. It is a tedious job, but it needs to be done.

You might be thinking, “well, but mushrooms grow in the wild all the time, who protects them from bacteria out there?” You are right, they do. Wild mushrooms are built to deal with all sorts of bacteria and bad growing conditions.

However, if they don’t like the conditions, or if they need to fight with millions of faster contaminants to grow, they simply don’t grow.

It happens all the time. When we take that process back to our home, we are controlling the natural process of the mushroom, with the difference that we need them to grow nice and healthy if we want to avoid wasting so much time on something that won’t work.

This is why keeping a sterile environment will help you achieve exactly that. It will bring balance to your favor. Therefore, how can we do this?

✓ Airborne contaminants

When learning how to grow mushrooms, everything you read tells you to be “contamophobic”. This isn’t necessarily founded on false facts, but it doesn’t have to be so serious. You don’t have to live in complete fear of contaminants in the air when growing mushrooms because we literally cannot see them, which will only make you feel paranoid. All you need to do is learn the best ways to fight them.

Stephen Russell, author of the book “The Essential Guide to Cultivating Mushrooms”, tells how when he first started to grow mushrooms, almost everything he saw was a possible source of contamination.

He cleaned, sanitized, sterilized, and cleaned all over again every surface,

utensil, and more. This all helped him raise his success rates from the beginning, so it wasn't for nothing. However, he says that in his first actual mycology lab during graduate school, he witnessed something very interesting.

They performed a procedure known as settle plates, which is used to give you a general idea of the mold present in a given area.

Each of the students took four petri dishes (these were the settle plates) and were told to leave two on the lab bench indoors, and two on the ground outdoors, all four uncovered, for around 30 minutes. When the time was up, they covered them and let them incubate for two weeks to see how many growth colonies appeared.

He expected too many colonies in all four dishes, but to his surprise, only two or three colonies grew in most of the indoor plates, while in the outside ones there were just too many to count. This backed up what his instructor had said: there are 10 times more contaminants in the air outdoors than indoors.

This doesn't mean that you should be completely relaxed and don't try to fight contaminants when working inside, but it is meant to give you a better idea of how contaminants work. Sterile environments will raise your success rate by quite a bit, but don't worry if you cannot afford expensive equipment right away; you can still grow some good mushrooms if you are careful.

Most experienced growers recommend using a Laminar Flow Hood. This equipment provides a clean stream of air that keeps contaminants away while you are working with your spawn and treated substrate.

However, they are quite expensive. Way outside the budget of a beginner grower. Still, it is a good option to consider for the future, once you are more experienced and would like to give a try to inoculating your own spawn using agar in petri dishes or liquid culture syringes.

Another option that is way friendlier for beginners, and easy to do yourself, is a Still Air Box (or SAB). This refers to a clear tote bin with holes cut into it for your arms. It is meant to be a box in which you can work on without opening the lid.

The good thing is that they are fairly easy to make. You will only need to cut two holes in the plastic big and comfortable enough to fit your

forearms, attach a pair of elbow-length gloves to them, and make sure to always clean the inside of the box thoroughly before using it.

Wipe the whole surface with alcohol or bleach and make sure to keep everything as clean as possible. The only downside is that it can be a little uncomfortable to transfer substrate into a vessel in such a small space, but it can be useful.

Some species like Oyster mushroom aren't very susceptible to airborne contaminants and can be quite hardy, this is one of the reasons they are one of the most beginner-friendly varieties.

✓ Substrate contaminants

We mentioned earlier how the substrate needs to be properly sterilized and pasteurized before using it. Failure to sterilize the substrate correctly is one of the reasons why mushrooms fail to grow in most cases. You need to make sure to research each type of substrate accordingly and follow all steps needed.

✓ Equipment contaminants

The word equipment covers absolutely everything that will come in contact with your mushrooms. Tools; like knives, scalpels, and stirring spoons. Vessels; like the one you will use for your substrate, the pressure cooker on the outside, and more. You will need to be thorough about this step as well.

Wipe all your workspace and equipment with bleach or alcohol, or you can also sterilize them with direct flame. This last option requires holding your scalpel, for example, in a flame for over 20 to 30 seconds or until it turns bright red. This will completely wipe out any bacteria in it.

✓ The cultivator's contaminants (yes, you!)

Like it or not, you are also a source of possible contaminants, and since you will be in complete, direct contact with your substrate, workspace, and equipment, you will need to be properly cleaned, as well.

Your hair, skin, breath, hands, and even your dirty clothes are all sources of bacteria that can harm the growth of your mushrooms. It is recommended that you shower before you get into any contact with the mushrooms of the working space. Put back long hair to keep it out of your

way. You should at least wear clean clothes, as well.

Extreme sterile conditions for yourself is especially important for lab-style work, like when you inoculate your own grain spawn and have to transfer mushroom culture from one place to another. In that case, you will need to clean your hands thoroughly, scrub under your nails, even if you are thinking of using gloves (which you should).

You can put on some sterile gloves and be careful to not place them on any dirty surface; if you do, clean them with hand sanitizer or alcohol. And if you want to take it one step further, you can also wear a face mask.

This will keep you from spreading germs and bacteria involuntarily. If you don't want to wear any mask, just make sure to not speak or open your mouth. And please, do not sneeze.

Overall, if you are just thinking of colonizing a 5-gallon bucket in your garage to see if you can grow mushrooms, you might not need to use face masks, but you should be aware of how you can contaminate your mushrooms and be careful with your movements.

Remember that all of these steps are meant to help you raise your success rate, so if you want to try growing mushrooms without sterilization, you can always do that. However, good results are not assured.

In the end, personal hygiene and extra care when it comes to your mushrooms takes practice. You will need to learn by personal experience how you can improve your impact on your mushrooms to obtain better results. All it takes is the right mindset and most importantly, some good sessions of trial and error.

Here are some great tips to keep your workspace free of bacteria as much as possible.

1. **Keep your area clean:** this should go without saying, but we will say it anyway. At some point, you will want to dedicate a whole workspace for your mushrooms; either to inoculate your spawn, work on your substrate, or harvest your mushrooms. In any case, you will need to keep this area as clean as possible. One good tip is to make sure you are close to the kitchen since most sterilization will most likely happen in there. Keep wipes with alcohol or bleach near at all times, and make sure that you handle your materials with care.

2. **Avoid having carpets in the working room:** Carpets are the perfect house for millions of spores and bacteria. Make sure that the room you choose has floors that are easy to clean, and that they allow you to spot any dirt easily from a distance. The same will go for the walls. Clean them thoroughly often.

3. **Keep it free of any drafts or random air movement:** When the air moves erratically, so do the contaminants. If you need to, close all windows and air conditioning ducts. Try to keep the doors closed and let the air settle before you start working. All of this might sound a bit extreme, but believe us when we say all these measures could be the difference between a successful harvest and a complete failure.

Being an expert in keeping sterile environments takes practice, so don't beat yourself up too hard if you don't master it at the first try. But mostly, don't panic. If mushrooms can grow in the wild among all of those threats, they will eventually grow inside your house. This all meant to assure the best results possible and to avoid having to waste hours of time and energy in a harvest that won't grow due to contaminants.

Keep on learning and researching about the different species you want to grow. The more you know the better. For now, let's dive into the next aspect of growing mushrooms, and one of the most important ones: different growing methods.

Different Growing Methods: Step by Step

As you know by now, mushrooms don’t have a “one size fits all” growing method. Different species will require different growing conditions, and you will have to keep each of them into consideration if you want to grow strong, healthy mushrooms that will add value to your meals and health.

In this section, we will go over the most popular growing methods and how to handle each of them, step by step.

We will outline the tools you will need and the type of mushrooms you can grow using each specific method. We hope that by the end of this section, you will have the knowledge needed to decide the kind of method you want to use, considering all variables and resources available for you. So, without further ado, let’s begin.

Methods to Grow Mushrooms Indoors

○ Growing in Straw Bags (Indoors)

This is a popular growing method widely used by many growers around the world. Straw is a common substrate to grow mushrooms because it is inexpensive, has excellent nutrition – although not enough to be wanted by many other contaminants – and is very easy to break down and work with.

Your mushrooms will not have to fight against the straw to grow; they will be capable of easily breaking through it during the fruiting phase. Straw can be obtained in a local farm or farm supply store.

Some companies even sell it already pasteurized and ready to use, but our advice is to pasteurize it again, just to be sure. Also, make sure you purchase straw and not hay, they are not the same.

Mushrooms you can grow with this method : Blue Oyster, Pink Oyster, King Oyster, Yellow Oyster, Enokitake.

(Taken from mushroomingtogether.blogspot)

Step 1: Pasteurization

We have mentioned several times before how straw needs to be pasteurized; now we are going to teach you how to do that at home. The easiest way to go about it is with a hot water bath.

This is the most popular one because it is not difficult and can be scaled up and down depending on how much straw you will use.

Deciding how much straw to use isn't an exact science, but it is recommended to have a 1:5 ratio of spawn to straw; which means that if you want to grow 1kg or 1 pound of spawn, you should prepare 5kg or 5 pounds of straw.

Pasteurization happens between 160º to 180º F (70º to 80º C). The goal is to let the straw sit in the hot water for at least an hour to kill any harmful contaminants.

Before beginning the pasteurization, you will need to cut the straw in smaller pieces, around 1 to 3 inches long (2.5 to 7 cm). We know this sounds quite tedious, but it will profoundly help your growing process.

Skipping this will result in longer periods for the mushrooms to grow. We don't want that! If you are planning on using a small amount of straw, you can put it in the blender or food processor in batches.

Larger amounts of straw can be put through a wood chipper or run over with a lawnmower if you'd like. Don't break it up by hand if you don't want to end up hating the entire process and giving up on growing mushrooms completely.

After that, fill a container that will fit all the straw with hot water. You can fill it with hot tap water, bring the whole container to a boil, or boil water on the side and pour it inside the container.

The important thing here is that the water reaches the right temperature, which is among the 70º - 80 ˚C or 160 º - 180 ˚F ranges. A thermometer will be very useful for this part. It will be necessary to check the temperature of the water with precision so you don't end up killing any good nutrients in the straw.

You can put the straw in nylon mesh bags and submerge it inside the hot water. Put something heavy on top of it to make sure all the straw is immersed and you don't miss spots.

Let it sit for about 1 to 2 hours, regularly checking the water to make sure it has the right temperature. If it begins to cool down, bring some water to a boil and pour it inside the container.

After the time passes, carefully remove the straw from the water. You can

use a pair of rubber gloves to avoid burning yourself with the hot water. Place the bag on a strainer or any surface in which it can drain and cool off.

Let the straw cool off completely. It is important to let it cool off before thinking of inoculating it because too much heat can hurt your spawn greatly. Once it has cooled down, you will need to use it immediately to make sure your spawn inoculates your straw before anything else has the chance.

Step 2: Inoculation

Lay the cooled straw out on a clean table or pour it in a tote or box (remember to always clean your working space with alcohol or bleach to avoid contaminants).

Break up your spawn and spread it on the straw. Mix it thoroughly using any sterilized tool or your own clean hands. There is nothing scientific about this part; just make sure to mix it all nicely.

After that, you will need to fill your vessel. Many different things can work with this method. You can use plastic bags, mushroom growing bags, poly tubes (which are big transparent bags widely used by growers), 5-gallon buckets with holes on the sides, or even a laundry basket.

If you use any type of bag, you will need to fill it with the mixture, pack it in well so that it is tight enough, but not compressed, and seal it. You can seal it using twist ties, or by folding the top nicely and stapling it. Make sure to force out as much air as possible before sealing it.

After that, use a sharp sterilized knife to poke holes in the bag every three or so inches (7 cm). The holes are necessary to provide some fresh air to the mixture, and for the mushrooms to grow through once they begin the fruiting stage.

If you use a 5-gallon bucket you will also need to clean it thoroughly beforehand and drill many holes through which your mushrooms will grow. Fill it up with the straw and close the lid, which should also have a good amount of holes drilled in it.

Step 3: Choose the location

After your containers or vessels are filled up, you will need to place them

in the right location around your house to begin colonization. As we have said multiple times, make sure to keep your mushrooms in a cool, dark place in which they will be free of disturbance.

The temperature for the spawn and substrate will depend mostly on the type of mushroom you choose, but the general guidelines recommend a temperature between 60º to 75º F (15º to 23º C). Bags can be hung up and left suspended; many growers find it easier to handle.

Step 4: Be patient

This is the time where you use all the patience you have and you simply wait until your mushrooms grow. For many, this is a fun part of the process.

It has the excitement of not knowing when you will spot the first sign of life, and the joy of seeing how the mycelium quickly spreads throughout the entire substrate. It is the time where you will see the beauty of nature, inside your own home!

You will need to leave your containers be. You don't have to check on them every day for moisture. Just make sure to keep an eye out for them a few times a week in case you notice some dryness. If this is the case, just spray the bags or container with a spray bottle through the holes.

It should take around 2 to 8 weeks for the substrate to be completely colonized; however, it will depend on the type of mushroom you are growing. Make sure to double-check the specifications and colonizing time about any specie you decide to grow.

After complete colonization, fruiting should begin quickly. If it doesn't, you can try exposing your container to a little bit of light. Not direct sunlight, because it might be harmful, but enough to let your mushrooms know they should begin to grow.

The rewarding feeling of seeing your mushrooms grow is quite amazing. Just make sure to be patient and understand that all experiences are different.

Treat them with care and hope for the best! If it doesn't work out this first time, you can always try again; each time as a better grower than the last.

Step 5: Harvest your results!

Congratulations, you have successfully grown mushrooms! Now, it is time

to enjoy them. As soon as your mushrooms have grown large enough to harvest, take a sharp, clean knife or scalpel and cut the complete cluster sticking out from the holes.

Remove the whole cluster by cutting straight through its base. It is best to pick individual mushrooms that are ready instead of waiting for the rest; mushrooms tend to go bad very quickly after growing, so make sure to pick them up at the right time to enjoy them at the peak of their ripeness.

You will probably get more than one fruiting per bag, so after it is all done, water it thoroughly and leave it in the dark for a few more weeks. Check on them regularly to see if the mycelium is fruiting again.

If you are planning on growing Oyster, a good tip is to harvest your mushrooms right before they get ready to drop new spores. You know they are about to do this because their caps begin to curl upward.

If they appear to have powder all over them, likely, they have already dropped their spores. This isn't a bad thing. We mention it because some people can develop an allergic reaction to Oyster spores over time, so it is best to avoid exposure to a big load of them, especially if you are growing indoors.

◦ Growing on Cardboard (Indoors)

This method is great for two reasons: it is very easy, and it is great for the environment. This is about using cardboard as a substrate. Yes, you read that correctly. Cardboard can be used as a substrate for mushrooms, especially Oysters since they seem to be able to grow almost anywhere. That is why they are such amazing species to grow for beginners. You can give other mushrooms a try with this method, although we won't assure you it will be quite as successful as it can be with Oysters. So, if you have some cardboard sitting around your house, and you would like to grow some mushrooms without going out to buy too much stuff, you can give this method a try!

For this method, you simply need to collect some clean cardboard and some spawn. You can also try with cardboard egg trays. They are even easier to come by and they will probably be thrown away anyway.

Mushrooms you can grow with this method: Blue Oyster, Pink Oyster, King Oyster, Yellow Oyster.

(Taken from inhabitat.com)

Step 1: Pasteurization

Similarly, to straw, you will need to pasteurize the cardboard to eliminate any contaminants living in it. So first, remove all the additional material that might be stuck to the cardboard: staples, tape, and labels. Cut it into smaller pieces so it will be easier to handle; besides, you need it to fit inside a container, so rip it accordingly.

Place the cardboard pieces inside a container that has a lid and is large enough to hold all of your substrate. An old ice cooler, plastic bucket, or container of any sort can work great for this. Boil enough water to cover all of your cardboard.

Remember the temperatures that we discussed in the previous method. The same ones will apply to this one. You can keep a thermometer near to help you keep track of the right temperature. Pour the water into the bucket and place something heavy on top of the cardboard to make sure all of it is submerged underwater; same as with the straw.

Put the lid on the bucket and let the cardboard sit in hot water for 3 to 5 hours. Yes, it is quite longer than with the straw, but it is because the materials are very different. The cardboard needs more time to be properly pasteurized.

While the cardboard is pasteurizing, take a plastic container (the one you will use for the inoculation step) and drill some holes in the bottom. This is meant to help drain the excess of water, as standing water can encourage mold growth.

Once enough time has passed, take the cardboard out of the bucket and drain as much water as you can. Use gloves to avoid burning and contaminating it. Squeeze it tightly to drain out excess water and get ready for the next step.

Step 2: Inoculation

Take the plastic container in which you drilled the holes and place a layer of cardboard at the bottom. Squeeze it tightly once again to make sure you drained all the water possible. Now, you will alternate layers as if you were making lasagna.

Over that first layer of cardboard add a layer of spawn and then repeat the process – cardboard, spawn, cardboard, spawn. Do this until you reach the top of the container. Make sure you end it with cardboard! When you are finished, gently press the layers with your hands, making sure that everything is in close contact with each other, while still retaining air spaces.

Step 3: Take care of it

After your cardboard lasagna is done, take a large plastic bag and cover the whole container with it. Close it up tightly at the top. This is meant to keep humidity levels high while the colonization happens, helping your mycelium spread under great conditions. Choose a dark, warm location to place your container, and make sure to check it regularly for any excess water pooling at the bottom; that can be harmful to your mushrooms.

The moisture level inside the bag, mushroom spawn quality, and temperature of the location will all affect how fast your cardboard is colonized. It usually takes a few weeks and up to 2 months, depending on many factors. When the while mycelium has colonized all of your cardboard, it is time to move onto the next step.

Step 4: Fruiting

For the mycelium to fruit, the cardboard should be entirely covered in the white mycelium. Don’t take the container out of the dark until it is. Once you see it has been completely colonized, open the plastic bag that covers it.

A good stream of fresh air will let your mushrooms know that it is time to grow, so the fruiting stage can begin.

Move the container to a place where it will receive some subtle light; nothing direct, of course – just enough so there is some clarity in the room, but no heat.

A couple of times a day, you can mist the cardboard with some fresh water. Try not to spray your mushrooms directly since it can encourage some bad mold growth.

Leave the top of the bag open, and its sides to increase the levels of humidity and keep the moisture inside.

Step 5: Harvest your results!

It shouldn’t take long until your mushrooms are ready for harvest. As we mentioned before, make sure to harvest your Oyster mushrooms before its cap begins to curl, or the edges get somewhat wavy.

You can harvest them once they are, but they will be in perfect ripe before that. You might be wondering; how can you even know when that is going to happen?

Well, the truth is that most likely you will be harvesting your mushrooms with way edges for a couple of times before you get the hang of it.

However, you can only do that by keeping track of your progress and writing down everything you see about your growing process. No detail is too small when it comes to mushrooms. That’s the only way to achieve perfect quality.

Continue spraying your mushrooms with water 1 or 2 times a day, and make sure to leave them in the light location. The second flush of mushrooms shouldn’t take long to appear, just keep spraying it with water and you might also get a third or four. Be patient and don’t rush it!

Growing in coffee grounds, or coco coir and vermiculite (indoors)

In the tropical regions of Central and South America, mycologists examined the possibility of growing in coffee grounds and banana leaves. They found that they can grow some good amounts of mushroom using this method. We have decided to include coco coir and vermiculite here as well because the same preparation is used for growing mushrooms in those materials.

This is by far one of the easiest ways to grow mushrooms, and also one of the most inexpensive ones. As long as you have access to good amounts of coffee grounds, you can do this right away.

You can even go make some friends at your local coffee store; seriously, ask them if they will save their coffee grounds for you. They probably planned on throwing it away, so they might be glad to give it to you instead.

Mushrooms you can grow using this method: The mushrooms that have demonstrated commercial yield on banana and coffee pulp are warm-weather strains of Oyster mushrooms (they grow on almost anything), and Reishi mushrooms, although not many growers recommend it. However, you can always try it and see how it goes!

(Taken from pinterest.com)

Step 1: Prepare your substrate

You will need to prepare your substrate accordingly, whether it is coffee grounds or coco coir with vermiculite. We'll start by explaining everything about coffee, and we will get into the second option in a minute.

Coffee grounds are simply the granular remains of coffee leftover from brewing it. The brewing process is great because it means that the coffee has already been pasteurized for you. The amount of coffee ground that you will need will depend on the size and number of containers you will want to fill; so if you are planning on growing plenty of mushrooms, you will need plenty of coffee grounds. As we already mentioned above, it might be time to go to the local coffee shop and make some friends.

One thing you will need to take into consideration is that the coffee grounds must be inoculated the same day they are brewed because allowing them to sit on the outside for too long, mold and other contaminants will begin to grow.

If you plan on going to the coffee shop, ask them that they provide you with a clean batch of coffee grounds that were brewed that same day and that doesn't include previous days' grounds. This will save you from some headaches.

You can also obtain the coffee grounds from your house, although it might take a little longer to gather enough grounds for the growing process, but if you are in no rush, go for it.

The grounds can be stores in a freezer until they are ready to be used. So, if you are gathering your grounds to be used later, put them in a bag in your freezer and keep adding to it until you have enough to start.

The cold with stop anything from growing, so you don't have to worry about contaminants; they can be left in the freezer for a long time. If you want to be sure that your grounds are pasteurized, you can do it again. Similarly, to what we have explained earlier with the straw and cardboard, you can give a hot water bath to your grounds. Put them in a clean linen bag and submerge them in hot water with the right temperature. Let them soak for about an hour and a half. When the time has passed, carefully remove the bag from the pot and let the grounds cool in a strainer.

Some growers recommend using a combination of straw with coffee grounds to give a boost to their mushrooms. The truth is that both methods have proven to be successful. The problem with using only coffee grounds is that when filling big containers or bags the ground can get quite compacted, not providing the necessary airflow for mushroom growth.

By adding straw to the grounds, it helps break up the substrate a bit and gives the mushrooms better access to fresh air. However, the downside of adding the straw is that you will need to prepare it before growing your mushrooms.

Straw must be pasteurized before being added to the grounds to avoid contaminants. Use the same pasteurization technique we outlined on the straw growing method. The best formula to mix spawn, coffee grounds, and straw is a ratio of 1:10 of mushroom spawn to coffee grounds and 2:10 of straw to coffee grounds.

On the other hand, coco coir and vermiculite are easy to prepare as well. As we explained earlier in the book, coco coir is the ground up husks of coconut, while vermiculite is an organic soil amendment. Both can be mixed to prepare a good substrate for your mushrooms. Additionally, they are both easy to find and inexpensive to buy.

These two substrates are mixed 50% and 50% to create an incredible

mixture for the growing process. However, these do need to be pasteurized before using them.

Coco coir comes in dehydrated blocks and needs to hydrated to use them correctly, They are capable of absorbing a great amount of water, and if you plan on using them often, you can even buy big rolls of coco coir that can be cut into smaller pieces for better handling, while the rest can be stored to be used in another time. These big rolls can be found on Amazon.

Similarly, to cardboard, pasteurize the coco coir and vermiculite by putting them in a bucket and pouring boiling water over them. Let them sit for a good amount of time. Make sure to use the amount of water that the coco coir package directs to hydrate the blocks. You can even combine all three substrates and add a handful of coffee grounds for added nutrition.

Step 2: Prepare your bucket

The easiest way to grow mushrooms in coffee grounds or coco coir with vermiculite is by using a 5-gallon bucket. However, plastic bags can also be used, so it will be up to what works best for you, or what you have available.

Prepare your bucket by drilling small holes around the center of the bucket, from which your mushrooms will grow. Also, remember to always clean it thoroughly with alcohol wipes or bleach.

Step 3: Inoculation

If you keep your coffee grounds in the freezer, you will need to defrost them before the inoculation phase. Take the bag of grounds to a location with room temperature and let them defrost for a while. Once they do, combine the coffee grounds with the mushroom spawn inside the 5-gallon bucket that you prepared.

Use a large clean (sterilized) spoon or tool to mix it all until it is all well combined. The mixture should fill around 2/3 of the bucket so that your mycelium has enough fresh air circulating. Shake or agitate the bucket gently, moving the substrate around.

This is meant to get rid of any air pockets in the mixture. Cover the bucket with the lid, although not too tightly. You can also use tinfoil to cover it.

Step 4: Be patient

Now it’s the time to wait for the mycelium to colonize the substrate. Remember how we mentioned that most mushrooms that grow in coffee grounds were warm-weather mushrooms?

Well, now, take your bucket or bag and place it in a warm, dark location. It will need to be a warm day and night, so you can even use a heating pad for this method if you leave in a cold area.

Mist the coffee grounds through the holes of the bucket or bag every few days, or as needed to keep them from drying out.

It should take the mycelium around a week or two to fully colonize the substrate. You will see the fuzzy growth stretching across the coffee. When it is completely covered, you can move the bucket to a place where they will see some partial light (again, not direct sunlight since it can be harmful).

The light will let your mycelium know that it is time to fruit. At that moment, you can remove the lid from the bucket. Around 5 to 12 days later, you will begin to see the little mushrooms growing out of the substrate.

Make sure to spray them every day to provide them with enough moisture.

Step 5: Harvest your results!

Once your mushrooms are big enough, it will be time to harvest them. Similarly, to what we have mentioned before, you can harvest your Oyster mushrooms once they begin to flatten their cap.

Take a clean, sharp knife and cut the base of the cluster, probably growing out of one of the holes. Continue to mist the substrate after harvest and keep it in the same location, most likely, a second fruiting should happen in a few weeks. Keep an eye on it!

Growing on supplemented hardwood sawdust (indoors)

Hardwood sawdust is a by-product of the lumber industry and a quite versatile growing medium for many types of mushrooms. It is recommended by many growers because of the fantastic yields it can produce.

This method isn't exactly difficult, but it will take some additional equipment and a little more technique than when growing with straw, so if you are just starting in the mushroom world, you might want to start with one of the very easy methods we outlined above to gather some experience, and then hop on a little more advanced methods, like this one.

Sawdust needs to be sterilized, instead of pasteurized, so for this method, we are going to assume you have access to a pressure cooker or something similar.

Also, the recommended vessels for this method are mushroom grow bags. They are specially made to grow mushrooms and can withstand the process of sterilization. You will also need a few small squares of Tyvek material. We will explain this in a moment.

Mushrooms you can grow with this method: Oysters, Shiitake, Lion's Mane, Maitake, Enonitake.

(Taken from freshcapmushrooms.com)

Step 1: Prepare your substrate.

You will need to use sawdust from hardwood like oak, beech, maple, and hickory, or a combination of these. Make sure to not use sawdust from softwoods, like pine or spruce, because they will not make a good substrate for your mushrooms.

You can acquire sawdust directly from a lumber mill, or even maybe from a wood-cutting pile. If neither of that works for you, you can try buying hardwood pellets at most home supply stores.

Normally, pellets are used for wood stoves, but they can help you grow your mushrooms. If you can't find them near you, they are most likely online. The pellets will need to be soaked before using them to create the sawdust.

To make the substrate correctly, sawdust is usually mixed with wood chips. This is meant to provide a better structure for the mycelium. Sawdust tends to be too fine on its own, providing the mycelium with nothing to hold on to. Also, sawdust is supplemented with a nutritional nitrogen-rich addition, such as oat bran, wheat bran, ground corn, millet, rice bran, and even spent barley leftover from brewing beer.

The supplement is added to help you make the growing process quicker; sawdust on its own takes a long time for fungi to digest. If you don't have any supplements, you can still grow your mushrooms. Just note that it will take longer.

The disadvantage of adding a supplement (because no, nothing is perfect) is that the mycelium will expend quicker and your second and third flushes will probably be considerately smaller.

If you manage to find some hardwood pellets, know that 1 cup of pellets is approximately equal to 3 cups of sawdust.

So, let's talk about the recipe for the substrate. This recipe is nothing complicated, and it is enough for two 5lb (2.3 kg) sawdust logs. The amount of sawdust you will use will depend on how much spawn and sawdust you have, and how much fits in your pressure cooker.

This recipe is enough for 1.5lb of mushroom spawn (0.6kg).

- ✓ 5 cups of hardwood pellets.
- ✓ 1.5 quarts of water (1.4 L)

- ✓ 1 1/4 cups of wheat bran OR 2 cups of oat bran.

Place your hardwood sawdust pellets in a large tote or any container that can hold them while you mix. Add the water slowly, mixing as you pour it.

You can add the whole water at once, but you might end up with a soggy mixture that is hard to mix. Keep on mixing and breaking up the pellets thoroughly.

They will begin to look like loose sawdust. You can use hot water if you want the process to be a little quicker, but cold water will be fine as well. Make sure that all of them have broken down and are easy to handle. The mushrooms will take longer to grow on hardened pellets. Take your time in this step. No need to rush.

After everything looks broken down and nicely, add the wheat bran (or the oat bran) to the sawdust and mix. Both supplements work just fine for your mushrooms; however, wheat bran is more effective when it comes to mushroom growth.

You can find it in small quantities at your local grocer, but it can be quite expensive. A good option is to buy it from a feed or farm store.

Keep mixing the mixture until it all looks well blended. You can increase the amount of bran you use to add more nutrition to your substrate, the downside is that this will also increase the risk of contamination, and it will eventually lead to diminishing returns. You can try both ways and see how it goes for you.

After the substrate is ready, it will be time to add it to your mushroom grow bags. Fill your bags accordingly. Don't fill them up to the top. I tend to add around 4lb to each grow bag (1.8 kg), which makes a 5lb once the spawn is added (or 2.2kg). You can weigh the substrate in the bag to be sure. As we explained earlier in the book, the tops of the grow bags are gusseted, which means they should be folded down in a specific way.

After you take the bags out of the sterilization process and they begin to cool down, air will be drawn into them. If there is no filter between the gussets of the bag, dirty air can sneak through and ruin your substrate. After all the hard work you have gone through, this cannot be allowed. To avoid this, you will need to use a filter.

This is where the Tyvek squares come into action. The Tyvek acts as a filter, which will help you prevent the bacteria from sneaking into your

bags. Take a square of Tyvek and place it over the sawdust between the gussets. Then, fold the ends of the plastic bag in the way that the product instructs, by folding it over a couple of times. A square cut from a painter's suit can also work as a filter.

(Taken from freshcapmushrooms.com)

Step 2: Sterilization

Before you place the bags in the pressure cooker or fill it with water, line the bottom of the cooker with jar lids or something metal and thin. This is meant to keep the bags from making direct contact with the bottom of the sterilizer, as this could cause the bags to burn.

Take your bags and stack them on top of each other inside the pressure cooker. Add water, enough to reach just below the top of the bag in the bottom. Make sure to add a heavy plate on top of the bags so they don't move around.

This is crucial, by the way. Not doing it can lead to some dangerous situations. By not placing something heavy on top of them to hold them in place, you risk the bag clogging the weight and the pressure relief valve. This could cause pressure inside the cooker to reach scary levels.

Once everything is ready, cook the bags at 15 PSI for 2.5 hours. This seems like a long like to pressure cook something, but it is the only way for the heat to truly penetrate the substrate and kill all potential contaminants. After the time has passed, allow the block to cool down for a minimum of 8 hours.

Do not use the substrate until it is completely cooled down; hot substrate can, and will, kill mycelium, and then all this hard work will be for nothing. You can leave the bags to stay inside the pressure cooker until you are ready to use them.

Step 4: Inoculation

Once the bags have cooled down, it is time to add the mushroom spawn. For sawdust, the best kind of spawn to use is grain spawn. It is easy to mix with the substrate and it will colonize it fast enough. You can find grain spawn for several suppliers online and offline.

Carefully open the bags, remembering all the precautions you should take to lower the risk of contamination: clean clothes, hair pulled back, clean tools, clean workspace, and more. You can also inoculate the bags using a Still Air box if you wish. Add the spawn to the bags, around 12 to 14 oz. each should be enough (340 to 400g). If you have chosen to use smaller bags, then you can easily scale down the amount of substrate and spawn you use.

Add the spawn to the bags and using a sterilized spoon or any other large instrument mix it up well. After all is nicely blended, re-close the bags and tie off the tops using a zip tie or band. Leave no space for dirty air to sneak in.

Step 5: Be patient

You can place the bags on a shelf inside a warm, dark room. It should be rather warm day and night, but not especially hot. It should take the mycelium around 10 to 30 days to colonize the substrate completely, although the length of the time it takes for colonization will depend on the type of mushroom you are growing.

Make sure to check on it daily or every other day to keep track of the progress. This is the part where writing down every single detail in a notebook should be your daily activity. Your records will help you grow different species using the same method and understand the different specifications and requirements for each. Write down the temperature, moisture, physical details, how long it takes to colonize, and every detail that comes to mind.

Once the mycelium has spread, move the bags to the fruiting location. The place you choose for this stage will also depend on the type of mushroom

you are growing. Most of them will require a location that is warm and with some minimal light to help them start the growing process.

If you purchased spawn from a company, check the package; it should indicate the optimal fruiting temperature.

Once the mycelium has colonized the block completely, they will be ready to fruit. Different mushrooms will have different requirements at this stage, like Shiitake, that will begin a phase called “popcorning”, but we will get onto that when we take a look at specific mushroom types.

For mush gourmet mushrooms, you will simply need to cut off the top of the bag and let them sit in your growing room. In around 5 to 15 days you will begin to see little mushroom pins forming, which means your mushrooms are growing and shouldn’t be long until they are ready for harvest.

Step 6: Harvest your results!

Congratulations! Time to enjoy the results of your hard work! Once your mushrooms have grown nicely and you are satisfied with their size, it will be time to harvest them. The best harvesting strategy is to cut the mushrooms off at the stem carefully, trying not to damage the underlying block, since it can be used to grow 3 or 4 additional flushes if you take care of them properly.

Once you harvest your mushrooms, take the bag and place it in the fruiting location once again, and watch for the next flush to grow. As your block gets older, you will need to keep a careful eye out for contamination. New mycelial growth will probably take over the harvested portions of the block.

Growing in Bottles (Indoors)

Did it ever cross your mind that you could simply grow mushrooms in bottles? Most people wonder about the same thing since it makes complete sense; they can be sterilized, they are easy to handle, and they can be protected from contaminants. All of this is true. Besides, mushroom grow bags have not been around forever. Before they were invented, people had to do with whatever they had.

Growing mushrooms in bottles is a very attractive method for several reasons. This is a technique that has been around for a long time and was perfected in particular by Japanese cultivators.

The bottle method is widely used in growing Enokitake to get a special shape and size, which is very interesting. In large operations, this growing method turns out to be very efficient in both quality and costs.

The use of plastic to grow mushrooms can quickly become a problem It can only be used once, which results in it quickly piling up. It only contributes to the garbage problem that we have on our planet; and it is quite ironic, considering that by growing mushrooms we have the privilege of being close to nature and all of its beauty.

So, growing in bottles is an environmentally-friendly choice. Besides, mushrooms grown in bottles have very consistent forms and fruits, making them easier to harvest and sell. However, the bottle technique has its downsides.

One of the disadvantages is that limited species are capable of growing in bottles. Plastic mushroom bags allow you to have access to a much wider variety. Additionally, even though the mushrooms grown in bottles tend to be uniform and desirable in form, they are also smaller than mushrooms grown using bags or other containers. Simply put, they don’t have enough space to spread out and grow.

Also, the time it takes for the mycelium to colonize the substrate will be longer than with grow bags; sometimes by a difference of up to 2 weeks. The final disadvantage is that you will only get one flush of mushrooms out of each bottle. There won’t be enough substrate to grow a second one; on the other hand, with plastic grow bags, it is possible to produce up to 3 and 4 flushes.

However, if none of this presents as a problem for you, then you should go ahead and start growing mushrooms in bottles. You will be helping the environment and you will surely learn a lot about the growing process. For this method, you will also need a pressure cooker or something similar.

Mushrooms you can grow using this method : Enokitake, Maitake, Oyster, Enoki (aka Winter Mushroom).

(Taken from freshcapmushrooms.com)

Step 1: Prepare the bottles

For this method, you can one glass mason jars, or any pint or quart size glass jar, as well as high-density polyethylene plastic bottles. Whatever option that is easiest for you to come by, as long as they have metal lids.

To prepare your bottles, using a metal paper punch, punch two holes in the metal jar lid. They should be on the opposite ends of the lid, around ¾ inches (2cm) from the edges.

You will also need a poly-fil stuffing. You can find this material on the inside of stuffed animals or some cushions. Take 2 small pieces of it and push one into each hole, making sure that there is some on the inside and outside, and that it is secure.

This is meant to help filter the air your mushrooms will receive.

Step 2: Prepare your substrate

For this method, we will use the same hardwood sawdust substrate we explained on the method above. However, you can also use the "master's mix" that we mentioned earlier in the book, the combination of sawdust and soy hulls.

Combine the ingredients for the substrate in a container; mix and hydrate them until you have a relatively dry sawdust-like mixture.

Fill the jars with the substrate up to about 0.5 inches from the top (1.3cm). Knock the jars on a firm surface, like on your kitchen table, to lightly pack the substrate and eliminate any air pockets. Take a wooden spoon and use its handle to bore a hole in the middle of the substrate, approximately ¾ inches in diameter (2cm). Make sure the hole goes right down to the bottom of the jar since this will be crucial for the colonization stage. This hole is meant to be filled with the mushroom spawn.

Make sure to purchase grain spawn to use for this method, since it will be perfect for the colonization of the substrate. Be careful handling the jars after you bore the hole. Rough handling can cause the substrate to collapse, making it harder for the spawn to spread. Put the lids back on and prepare your pressure cooker.

Step 3: Sterilization

Some growers report having sterilized their jars using regular pots, and growing their mushrooms without trouble; however, you will need to place

additional jar lids on the bottom to avoid the jars to directly touch the metal, and you will need to boil the jars for a longer time to make sure the heat penetrates the substrate; around 2 to 4 hours.

This is only a tip that you can try, but we recommend using a pressure cooker since it is safer and more efficient for mushroom growth.

To sterilize your jars using a pressure cooker, you will need to place the jars upright inside. Placing them on their sides means the hole you just bored will collapse. Cook them at 15 PSI for 90 minutes. That will be enough for the heat to kill most, if not all, contaminants.

Step 4: Inoculation

After the sterilization process is ready and the bottles have cooled (along with the substrate), your jars will be ready to be inoculated. As always, be careful to keep a sterile environment by taking necessary precautions to avoid contaminants from the workspace or yourself. Expert growers usually use a laminar flow hood to work in front of when adding the spawn to the bottles, but that is not equipment friendly for beginners, as we have mentioned before. So, do your best to keep the process as clean as possible.

Unscrew the lid of your jar and pour the mushroom spawn into the hole, doing your best to make sure it goes all the way to the bottom. Put the lid back on and seal it tightly. You should have a pretty inoculated jar with a poly-fil stuffing sticking out from the lid. Wonderful!

Step 5: Be patient.

You know how it is. This is the part where you wait for your babies to colonize the substrate. Place the jars in a secure location, away from any direct sunlight. The room temperature should be just fine, but make sure to always keep in mind the optimal growing temperature for the species of mushroom you are growing.

The colonization process can take 3 to 4 weeks to spread. Check on it regularly to make sure everything is going according to plan. Enokitake mushrooms will require colder temperatures to fruit – around 10º C or 50º F. Some growers even recommend putting them inside the refrigerator at this point.

Wait for the mycelium to cover entirely the substrate before moving the jars to the fruiting location. That ideal location will depend on the type of

mushroom you are growing, too.

Step 6: Fruiting, Harvesting, and Reusing

Once your mycelium has colonized the entirety of the substrate, take off the lid, and remove the top layer of mycelium with a clean fork. Yes, this sounds weird, but this re-invigorates the mycelium and helps inducing an even pin set; once scratched, place a wet layer of cheesecloth over the jar.

This is meant to help you maintain the moisture and humidity inside the jar. Make sure to mist the cloth with water whenever it dries. In this stage, you will need to keep a close eye to your jar, because once you notice your mushrooms are beginning to pin, you will need to take off the cheesecloth to give them the space they need to grow out the top of the jar.

Eventually, you will see how your mushrooms grow on the top of the bottle; once you are satisfied with their size and form, cut the mushroom's stems off across the top of the jar to harvest them. You can also twist the fruits off at the base.

Mushrooms that are harvested by pulling off the fruits, rather than cutting them with a knife or scalpel, should last longer in the fridge.

After you obtain your fresh flush of mushrooms, you will be able to reuse your jars – just like we promised you could. Empty the jars, clean them thoroughly, and use them again and again by repeating the process. Isn't it great?

- # Compost blend for growing (Indoors or Outdoors)

This method is used to grow Button mushrooms. These mushrooms are grown commercially by many different companies around the world, and they are widely used in the kitchen. They make a great companion for many different dishes. You might know them as Portobello mushrooms as well, which are delicious and quite expensive in supermarkets.

But as common as they are, they require a special growing method, different from other mushrooms. What a diva, right? Well, in short, they need lots of nitrogen and will refuse to grow without some sort of manure or compost to feed on, additionally, they will need straw or mulch chips, as well.

The thing about this method is that you will need to choose your location wisely; as you may know by now, compost stinks. You can use this method both indoors and outdoors, and we will explain both. Choosing the location will be entirely up to what you have available and what works best for you; a basement or crawl space can work well.

The materials for this method aren't many since all you will need is compost, a little peat moss, a grow tray (at least 8 inches deep (20cm), and around 2x4 inches, or 5x10cm), mushrooms spawn, newspaper, and a spray bottle.

About the compost:

These mushrooms are grown using a specific type of compost. It is a thorough composting of manure-enriched straw that it turned every other day for the composting process to occur. Then, it undergoes a secondary high-temperature fermentation to encourage the proliferation of allies resistant to heat.

A wide number of compost formulas work well, using chicken, horse, and cow manure as a rich source of nitrogen and microbes useful for the nutrition of the mushrooms. The large piles of compost naturally heat up to 160º F (70º C). Once it is ready, the compost is properly pasteurized to eliminate any contaminants.

This type of compost is usually made by large-scale companies that produce this type of mushroom, however, it is difficult to make by beginners wanting to start growing mushrooms at home. This is why we recommend buying the compost ready to use.

That is a far easier and quicker option and saves you quite a lot of trouble. Many garden centers and online retailers sell compost specifically to grow mushrooms. Of course, this is what you want to acquire; you need to make sure that you are buying compost *for* mushrooms, instead of mushroom compost.

It might sound like the same thing, but I promise you, it isn't. Compost for mushrooms is the one that has been specifically made to grow mushrooms and facilitate their growth. Mushroom compost, on the other hand, is the spent substrate left over after the process of mushroom growth. Many farmers love to use the latter as a rich addition to their fields and gardens; which, by the way, is a great idea.

You can always try to use your own compost if you happen to have a pile ready in your backyard; however, it will need to be mixed with a nitrogen-rich material like manure, coconut coir, or gypsum. After that, you will need to properly pasteurize it to make sure your substrate isn't full of contaminants.

You can give it a shot and see how it goes; you never know, it might work, and then you won't have to buy the compost from a retailer.

Indoors:

Step 1: Prepare your substrate and inoculate

Most of the time, the compost you buy from companies is already pasteurized and ready to use. You can pasteurize it anyways to make sure. After you finish that part of the process, make sure to add some water to your compost. The compost should be wet, but without being soggy.

It shouldn't have any water dripping out. You can take a bit of compost between your thumb and forefinger, and squeeze it. If it is in optimal conditions, it should release 2 to 3 drops of water, and that's it. If it is still too wet, let it dry a bit before using it.

Once it is ready, take enough substrate to fill the tray up to about 2 inches from the lip (5cm). Sprinkle the spawn over the top of the compost and mix it thoroughly with a sterilized spoon. Grain spawn is the best choice here. Some expert growers specifically prefer using rye; however, you can always experiment to see what works best for you.

When you finish mixing the spawn and the compost, take the tray and place it in a cool, dark, moist location, like a basement. Optimal temperature rounds 70-77º F, or 23-25º C, and it should take around 18 to 20 days for the mycelium to fully colonize the substrate. Make sure to mist the compost daily to maintain the right amount of humidity. It will require around 90% of humidity to colonize.

Step 2: Take care of it

Once enough days have passed under the right conditions, and your white mycelium begin to appear, you will need to cover the tray with a 2 inches (5cm approx.) thick layer of peat moss, and then a layer of newspaper. This is meant for the mycelium to spread.

Growers also recommend casing the substrate with soil; however, we recommend the previous method (You can try both and see where you stand). Make sure to maintain a temperature of around 65º F to 70º F (18º to 20º C). Check on the tray daily for the beginning of pin formation.

Once you see the mushrooms starting to pin, remove the newspaper, and continue to mist the top of the compost every day until your mushrooms are big enough for harvest.

Step 3: Harvest your results!

This is where you choose what type of mushroom you want to have. If button mushrooms are harvested while they are relatively small, you get button mushrooms. If you let them grow, you will get Portobello mushrooms. The mushrooms are harvested when they are broadly convex but not plane.

The mushrooms need to be twisted from the bed, trimmed, and then set, stems down, into the collecting basket. Make sure to be careful not to disrupt neighbor mushrooms when you harvest them. You can also take a sharp, sterile knife and cut them off at the bottom of their stems.

However, we recommend using the first method, since leaving bases behind can result in having spots of rotting in your substrate, and since the substrate is capable of producing more flushes, it won’t be very beneficial.

When you are done harvesting, leave the tray where it is and check on it regularly for the appearance of 2 to 3 more flushes to harvest for 2 to 4 weeks.

Outdoors：

Growing button mushrooms outdoors will require the set-up of a bed of some sort. A raised bed will do just fine. If you are not familiar with this, raised-bed gardening is a form of gardening that encloses the soil (or in this case, substrate) in 3 to 4-foot wide containment units (around 1 to 1.2 m). This is what you call a bed.

The containment units are usually made of wood, rock, concrete, or cardboard. The ideal height for a raised bed is 8 inches (20 cm). You can always make the bed bigger in width and length, but the height should be kept the same.

Additionally from the rest of the equipment, we mentioned in the previous method, you will need some cardboard and black plastic sheeting.

Step 1: Preparation of the bed

In this case, the bed is meant to act as the tray of the indoor method. Therefore, you will need to fill the garden bed with approximately 6 inches of compost (15cm).

After that, cover the compost with wet cardboard, and cover the bed with the black plastic sheeting. This plastic is widely used in gardening for many different reasons; in this case, we will use it to create a sterilization chamber for the substrate. Black plastic sheeting absorbs light and gets hot, eliminating possible contaminants inside the bed. Fasten the sheeting plastic firmly to the sides of the bed, avoiding contact between the plastic and the substrate. Let it sit like for two weeks.

Step 2: Inoculation and fruiting

When the time has passed, remove the plastic and the cardboard carefully. You can use gloves for this to avoid contaminating the substrate. After that, spread the mushroom spawn over the compost and mix it in well using your hands or any clean tool.

It shouldn’t take long until you see the white mycelium beginning to spread. When you do, spread peat moss over the compost. Cover the peat moss with newspapers and mist it daily with water to keep everything moist enough. You should do this for about 10 days, approximately.

When your mushrooms begin to appear, remove the newspaper and continue misting it daily. You should make sure that the temperatures that you have in your area are adequate for the mushrooms. Spring and fall are great seasons for this.

Step 3: Harvest your results

When the time comes to harvest your little babies, you should do it the same way that was explained for the indoor method. Keep an eye out for additional flushes in the following weeks. Keep on misting your substrate to make sure moisture levels are correct. It is possible to get 2 or 3 more flushes from the substrate. Enjoy!

Methods to Grow Mushrooms Outdoors

○ “Lasagna” Mulching for growing (Outdoors)

This method requires that you have some available space in your garden suitable for setting it up. The requirement is that the space counts with the presence of partial or full shade. Most of us associate shade with trees, but that’s not the only way you can provide shade for your mushrooms.

Shrubs, hedges, and even vegetables can all provide an adequate amount of shade that this method needs. What shade does is maintain an adequate amount of moisture needed for the mushrooms to thrive.

The best season to start a mushroom bed is the beginning of the spring, as well as fall, 30 or 40 days before the first frost. The important thing is to not let the beds dry out.

This method is called “Lasagna” because of the way the materials are layered within the bed, which we will explain in a minute. For the substrate, we will be using wood chips.

These wood chips must be fresh; freshly chopped the day you are inoculating.

This doesn’t sound convenient, but it is meant to avoid as many contaminants as possible. When the chips are allowed to sit for a day or more, other organisms and microbes will invade your substrate, and the mycelium will have to fight for resources. Two of the most common mushroom types grown with this method are Wine Caps and Oysters, which are both pretty aggressive; which means that we only need to make the conditions as favorable as we can, and they will find their way from there.

Wine Caps, for once, can grow using only straw, cardboard, or wood chips. However, when they grow on just straw, they use up the nutrients very quickly and results in a small harvest with small mushrooms.

On the other hand, using only wood chips means it will take much longer

for the mycelium to fruit; but they will produce large, meaty mushrooms for a longer period.

Can you see how these two substrates can help each other? The lasagna method was developed to combine the best of both worlds for multiple species.

We are going to consider the number of materials that are enough to fill a 10x10 foot space (3x3m). For that, we will use a 5lb bag of mushroom spawn (2.2 kg), 1 yard of fresh hardwood chips, and cardboard, enough to cover the entirety of the space. You can also obtain some pasteurized straw, although its use can be optional.

We will explain this in a minute. You can easily scale down this recipe if you plan on building a smaller bed.

Mushrooms you can grow using this method: Wine Caps, Oysters, Enokitake.

Step 1: Create the bed

As we mentioned before, you will need to choose a location that can provide some shade for your mushrooms. Once you locate the perfect place to watch your babies grow, you can contain it with the materials we mentioned above: wood, concrete, or rocks – whatever works best for you.

You can also place your mushrooms in a patch in your garden without it necessarily being a raised bed, but if you have pets or you want to avoid stepping on the place by mistake, my recommendation is to place a fence around the area to keep it safe.

After you locate the perfect place, take the cardboard and rip it so you expose the corrugated area. Soak it up with water until it is all wet and place it over the entirety of the garden bed. On top of it, spread 2 to 3 inches (5 to 7cm) of wood chips. The wood chips should have been soaking for a while; enough for them to be nicely wet.

(*Taken from YouTube*)

Step 2: Make the “lasagna”

On top of the wood chips, sprinkle a good amount of spawn, crumbling it up as you go. It is okay if some big chunks are left, but make sure to crumble it as much as you can. On top of the spawn, add a second layer of wood chips, the same amount of before will be fine.

Here is where you can make a choice. You can either use pasteurized straw to cover the woodchips, soaked beforehand, which will need to be covered with an additional layer of wood chips; or, finish the lasagna with any spawn you have left and top it with a single layer of cardboard, which needs to be watered well. Both will help provide protection and nutrients to your mushrooms.

Step 3: Take care of it and be patient

Water your garden regularly, almost every day for around 2 weeks. After that, you can just let it be – unless you live in a particularly dry area, or there are any droughts where you live. If that's not the case, you can just water the garden when it is looking dry.

In this method, it is necessary to point out that you will need to be patient. Wine Caps, for example, will take anywhere from 6 to 12 months to fruit. So, if you don't see any changes in around 2 weeks, don't think you have done something wrong – it just takes longer.

The time for fruiting with outdoor methods tends to be quite longer than indoor methods, so you will have to be patient.

Step 4: Harvest your results

After all those months of waiting, eventually, you will be able to harvest your little babies! When it comes to Wine Caps, you can harvest them when you can see the gills and the stems break easily. They tend to grow fast at this stage, and they get bitter once they are too large.

For Oysters, just keep an eye on them and harvest them when you are satisfied with their size. Keep in mind that you won't be the only one craving these mushrooms; many different animals will too. You want to get to your mushrooms before anything else does, so keep a close eye on them.

The great thing about this method is that it can last for a long time. Each year, you can simply add 1 or 2 inches (2.5 to 5 cm) of additional fresh wood chips on top of the old ones and they will continue to spread.

This is why it is so great to grow mushrooms when you have enough space in your garden; they will just keep coming back!

Growing on Logs (Outdoors)

This method is not exactly the most beginner-friendly, but it isn't particularly difficult either.

If you own a farm or even a small woodland, and you want to know how to grow mushrooms using the wood you have available, this is a great method to try. This is also a method that proves how valuable patience can be.

It takes a long time for the mycelium to colonize the logs, but they will continue to produce mushrooms for an even longer time. If you want to see results right away, this isn't a method for you – but if you don't mind waiting enough time for nutritious, healthy mushrooms, you can give this a try.

In the beginning, it is highly recommended that you start with only a few logs.

Sudden changes in temperature and moisture are what cause the spawn to fruit and the mushrooms to grow.

If your area has high temperatures during summer months and not so much rain, the logs will have to be soaked or water to keep the moisture. This is why placing your logs near a water source is ideal.

Mushrooms you can grow using this method: Shiitake, Maitake, Lion's Mane, Oyster.

Step 1: Choosing the logs

Most hardwood species are good for growing mushrooms, although some will work better than others. For example, Oak is one of the best options out there, especially for Shiitake and Maitake.

Oak decomposes slower than other types of woods, giving fungi an expanded time to fruit. Sugar maple and red maple will also work with Shiitake.

Oyster mushrooms tend to grow best on white birch. Alder, birch, aspen, maple, poplar, beech, balsam, elm, and willow will all work as well, though.

The harvest time of the logs is a subject that many growers continue to

experiment with. However, expert mycologists recommend that the wood should be obtained from living trees that are harvested in winter.

This is because most tree species contain all the sugar and energy they have been accumulating during the summer months into the wood, so they have the highest energy potential. That being said, experiments with log cultivation has found that you can also cut the tree anywhere around mid-summer to late fall, but certain techniques are recommended to maximize the efficiency of the wood.

Tip: don't cut the tree while it is budding out in late spring. Bark retention will be poor and the logs won't last nearly as long, so keep that in mind.

Also, it's important to choose healthy trees when selecting logs. Any trees with decayed wood or any sign of infection can present your mushrooms with a risk of competition due to pre-existing fungi that might already exist inside the logs.

The size and diameter of the logs can vary, however, keep in mind that the larger the log, the longer it will take for the mycelium to colonize. Once a large log has been colonized completely, it will produce mushrooms for a longer time, so it will depend on what you are looking for, and how much time you are willing to invest in them.

The ideal log dimensions to grow mushrooms are 3 to 4 feet (1.25m) in length, and a diameter of 3 to 10 inches (8 to 25 cm).

Your logs will need to be kept in a shady, humid area. The temperature will vary depending on the specie, although most of them enjoy warm temperatures. A nice place to keep them is under the canopy of a nearby tree.

However, as we said before you should choose the location depending on how much access they will have to water since they need to be kept moist during the incubation and fruiting stage; you will also want to consider places with easy access for you, so you can keep an eye on them regularly.

The time from when the tree is cut down to inoculating the logs shouldn't be longer than 1 month. Letting them sit around for too long after being cut risks the growth of other fungi. As you know by now, they are quite opportunistic.

Step 2: Drill the holes

The way that the inoculation works with logs is that holes are drilled in the wood, providing the mycelium easy access to the inside of the wood. This is why you will need to drill holes in the log.

You can use a 5/16inch drill, although it is possible to obtain drills that are designed for mushroom cultivation on logs, making the process faster and more accurate. The holes will have to be around 1 inch deep (3cm), and with 4 to 6 inches of separation between them (10 to 15cm).

Drill a row of holes on your log using those measures, leaving 2 inches (5cm) from both ends of the log without holes. Once the first row is complete, position the next holes in a staggered row.

Start the next row of holes about 2.5 inches (6cm) from the first, and stagger the row to create a triangle or checkerboard pattern.

Step 3: Inoculation

The most common types of spawn used in logs inoculation are plug spawn dowels and sawdust spawn. It will depend on your preference, the type of mushrooms you want to grow, and the conditions of your area. Both are available online from retailers.

Plugs are easier to use; however, sawdust has better mycelium colonization rates.

To inoculate your logs using plugs, you will need to get them fully inserted. All you need to do is place the plugs in the holes and gently tap them with a hammer to set them into place. They should be below the surface of the bark and flush with the actual wood of the log. That way it will be easier to seal them with wax. We will explain that in a minute.

If you are using sawdust spawn, you might want to consider obtaining a special spring-loaded inoculation tool that will help you insert the spawn deep into the holes you have drilled.

(Taken from YouTube: North Spore)

Insert the spawn immediately after drilling. After that, you will need to have some cheese-wax, paraffin, or candle to seal the holes and protect them from other threats and help them colonize properly.

This will also help maintain the moisture within the holes. A good tip is to melt the wax in a crockpot earlier in the day before you even begin drilling the holes on the log, and keep the pot warm to maintain a wax liquid and easy to use. This is to avoid having to wait for the wax to melt after the holes have been drilled. Once your spawn is inserted, you can take a brush or a cotton ball to put the wax on top of every hole.

You can also seal both ends of the log with wax. Technically speaking, this isn't necessary if you live in an area with damp weather, but it will be helpful for several reasons. It helps retaining moisture in the log, which is crucial if you live in a dry or hot area.

Besides, it allows the mycelium to colonize to the end of the log, helping you see the mycelium once it reaches the ends. You can just use a paintbrush to cover the ends with the wax.

Step 4: Take care of your logs

As we mentioned, you will need to place your logs in an area with a good amount of shade, protected from the wind so they don't dry out too quickly. You can place them up against your house, for example.

If you have a bunch of logs, you can stack them but make sure that all of them are close to the ground; this is meant to preserve moisture, as well.

Make sure to leave some space between them for good air circulation.

After you have your logs inoculated and placed, the fun part begins: waiting. This is where you will need to use all of your patience because it can take up to 1 to 2 years for the mushroom to colonize the logs. The time of colonization will depend on moisture levels, how much spawn is in the log, the size of the log, and more. Maitake, for example, can take up to 3 years for the first fruiting to appear. It truly is a method for patience.

If there is no rain in your area, make sure to water your logs regularly. You will want to water your logs at least once or twice a week for ten minutes to help maintain the right amount of moisture that they need.

If you allow them to dry out completely, your mycelium will die. This is why it is so important that you locate your logs near a water source, like a hose. They will need it quite often.

Step 5 (optional): Shocking your logs

This is not a necessary step in the process, but it might help you speed up the process a little bit. Initiating or shocking your logs is a useful strategy to help your mushrooms "wake up" and fruit a little sooner than they would naturally.

You can do this by allowing them to soak in cold water for 24 hours. This can be done in a stream, pond, or even a child-size swimming pool, or get creative and fill up a bathtub or canoe. Whatever works best for you.

Make sure you give your log at least 6 to 9 months before you shock them to ensure mycelium has had enough time to colonize a good portion of the log. Again, this is not necessary, but one good option is to try it with one of your logs and compare results with the rest. Remember that we recommend writing down every detail of the process, like the day of inoculation and such. This will help you in future harvests.

Step 6: Harvesting

Eventually, all your hard work will pay off and you will be able to harvest your beautiful mushrooms (finally!). Most mushrooms grown on logs will fruit around spring or autumn.

This can vary depending on the type of weather you have in your area. It's important to check on your logs regularly to see how they are progressing. Note that once your mushrooms begin to grow, they grow pretty fast. You

can see full-grown mushrooms in just a couple of days after they start pinning.

You should harvest the mushrooms 5 to 7 days after they first appear. If you leave them for about 3 weeks, the mushrooms will be too tough and woody to be edible, and the longer you leave them, the risk of them being eaten by insects and pests increases. Harvest them by gently breaking them off at the stem.

Shiitake mushrooms, for instance, should be harvested while their caps are still closed and they are about 2 inches (5cm) in diameter. This usually takes around 2 to 7 days after they first appear. Oyster mushrooms need to be harvested while there's still a curl to their shape before their rim gets straight and stretched out. Fresh mushrooms grown on logs will last for a few days, or even up to a week, in the refrigerator, so it is best to enjoy them right away. They can last longer if they are put in paper bags inside the fridge.

Storing, Drying and Freezing

By now, you have enough information to know how to grow mushrooms using different methods, both indoors and outdoors. Will you go for it? That's up to you, but we recommend that you totally should.

Now it is time to learn about the best way to store your mushrooms after they have been harvested. We have already given you a general idea and tips regarding certain types of mushrooms, but if you want to become an expert mushroom cultivator, you will need more than that. Let's dive in.

Storing

The truth is that mushrooms are best used right after harvesting, which is when they are as freshest as they can be. However, this won't always be possible, especially if you are thinking of starting a business on homegrown mushrooms. Mushrooms begin decomposing right after you harvest them, so to extend their shelf-life they will need to be quickly chilled.

You can put them in the refrigerator inside a paper bag, as we mentioned before. Place the whole, unwashed mushrooms inside a brown paper bag and fold the top of the bag over. Then, put the bag in the main

compartment of your fridge. The bag will absorb excess moisture from the mushrooms so they won't get soggy or moldy.

However, they shouldn't stay longer than a week in there. Even with the paper bag, they will begin to break down and the quality will decrease. So, how do you know when your mushrooms have gone bad? There are many signs that you can check to see if your mushrooms are safe to eat after being in the fridge for too long.

For instance, one of the most common signs is that the mushrooms show a slimy texture. When your mushrooms appear to be slimy, they are not good to be eaten anymore. While they are not exactly dangerous at this point, most people prefer to toss them before taking the risk of consuming them and get sick. Another sign is that they appear to have developed wrinkles.

Some mushroom species won't get slimy, but they will dry out and get wrinkles. It's okay for your mushrooms to dry out a little, but getting too many wrinkles can be a sign that they are no longer safe to eat.

If you notice your mushrooms are showing dark spots or appear to be a darker shade, it is also a sign that they are starting to go bad. If you see this sign on your mushrooms, it is time to cook them and try to save them or lose them. Also, your mushrooms are not supposed to be too smelly, so if you can smell them, they are bad.

There is also another good way to store mushrooms; however, this is more of an Italian recipe. It is about preserving the mushrooms in olive oil, and they can last up to 6 to 8 months. For this recipe you will need:

- ✓ Mushrooms
- ✓ Cloves of garlic
- ✓ Vinegar
- ✓ Chili Pepper
- ✓ Black Pepper grains
- ✓ Salt
- ✓ Bay leaves (laurel)
- ✓ Olive oil

You will need to wash your mushrooms in a bowl with water to get rid of any dust or dirt. Afterward, fill a pot with water, vinegar, 1 clove of garlic, 2 bay leaves, and salt. Add the washed mushrooms and bring them to a

boil for 10 minutes. After that, drain them and put the mushrooms on paper towels to dry the excess of water.

Take a jar with a tight lid and layer the black pepper grains, the chili pepper cut in pieces, the remaining garlic cloves, and 2 bay leaves, along with the mushrooms. Fill the jar with enough olive oil to cover all of the mushrooms. Leave it at room temperature for a week before tasting it. Afterward, you can serve it with bread, topping it with a little salt and black pepper to taste.

Drying

Another way to preserve your mushrooms is by drying them. Most mushrooms are around 90% water, which means that they are very easy to dry. However, not all species should be dried. Oysters, Buttons, Shiitake, Wine Caps, and Maitake work great with this method, but Lion's Mane acquires an odd texture after being dried, and Enokitake are already so thin they disappear; so it is best to not dry them at all. After being dried, mushrooms can be stored for many months.

The easiest way to dry mushrooms is with a dehydrator. If you have one, clean your mushrooms well and let them rest on paper towels to get rid of excess moisture. Place them in a single layer inside the dehydrator and set the temperature to medium.

The time it will take to dry them completely will depend on the type of mushrooms. They should be dried until they are hard as crackers. Store them in tightly sealed glass jars or plastic bags inside your fridge. You can even freeze in plastic bags, and they will last for a long time. Dried mushrooms can be powdered and sold as such for teas, seasoning, and more.

Mushrooms can be easily re-hydrated before consuming. You can soak them in warm water for 1 to 2 hours before using them. You can use this water to provide flavor to the meal you are making. Or, you can simply add the mushrooms to a broth that you are cooking, for example. If you add them to a stew, for instance, they shouldn't take long to re-hydrate, either.

Freezing

Whatever you do, don't freeze your mushrooms raw. This is something that you will regret deeply. Let me tell you why. Since mushrooms are mostly water, freezing them raw will inevitably lead to a very unpleasant

texture once they are defrosted.

They become soggy and simply not as delicious as they should be. So, how can we freeze our mushrooms? The answer is very simple: by cooking them first. The heat will help you get rid of excess water and preserve their quality after being defrosted.

Sauté your mushrooms first and then freeze them. They will last for up to 6 months, maybe longer. To sauté your mushrooms, put a skillet or pan over medium-high heat and melt some butter, or heat some oil. Cook, or brown them, for about 7 minutes each side, or until excess moisture has been released.

Drain the moisture. You can either take them out at this point or add any seasoning or companion or your preference. Spread them in a cooking sheet and put them in the freezer for 30 minutes. After the time’s up, take them out and place them inside a freezer-safe bag, and return them to the freezer. You can defrost them whenever you wish to use them and they will taste great.

Reusing Spent Substrate

Once you start to grow a considerable amount of mushrooms, you might soon find yourself with large piles of used substrate and no idea of what to do with them. Before it begins to grow too quickly, it’s best to have a solution in mind.

The most obvious, and easiest, choice is to compost it. Composting is a biological process in which bacteria and insects break down the organic material into a soil-like product.

Composting is not only great for your plants, but also for the planet. The truth is that if you compost regularly, you can reduce your level of garbage by 25%, how amazing is that? So yes, it is an amazing choice to keep in mind. If we all had a compost pile in our garden or house, the planet would appreciate it.

By throwing your used substrate into a compost pile you will be letting nature do its thing; giving way to the natural process of decomposition. You might even get a flush or two of mushrooms in your compost pile. It won’t take long before your substrate will decompose into rich, loamy compost that can be added to your garden.

It is a great addition to many different types of plants, and you would be helping the Earth by reducing the air emission the incinerating plants that burn garbage produce.

It is also possible to reuse your substrate to grow mushrooms once again. For example, if you have in your hands a bunch of spent Shiitake blocks, you can simply break them apart, re-sterilize them, and reuse the material to grow more Shiitake.

However, note that the yield won’t be as high as the original ones and that you might need to add some sort of supplementation.

Different Kinds of Mushroom

Chances are that by now we have mentioned quite a number of species that you can grow at home, which makes it difficult to choose only one.

The truth is that the type of mushroom you grow will dictate the temperature, moisture levels, location, growing method, and more, which is why it is so crucial that you understand what kind of mushrooms you can grow in your area depending on the weather and resources available.

For example, you are not capable of providing cold temperatures, it will be best to go with mushrooms who endure warmer temperatures. To help you make the decision, we will outline many different species of mushrooms along with conditions needed for them to thrive, and you will have enough information to know what kinds you can grow.

So, without much more to add, let’s dive into the different kinds of mushrooms you can grow at home.

○ Portobello (Agaricus brunnescens)

We have mentioned this mushroom quite a few times, and that's because we all know how delicious it is – making it one of the most consumed mushrooms in the world. It is big, it is wonderful, and it is perfect for gourmet cuisine. Young mushrooms present whitish, off-white beige to brown color. Common names of this mushroom include Portabella, Champignon, Button Mushroom, Cremini, Baby Portobello, and more.

Method of cultivation: Portobello mushrooms grow well indoors and most mushroom farms nowadays prefer this method since it is easier to control the environment. Grain spawn is mixed with manure-enriched compost. We explained this method earlier in the book. A gran that works great for this mushroom is rye.

Substrate: As we mentioned before, this type of mushroom benefits from a thorough composting of manure-enriched straw that undergoes a composting process of two phases. Numerous compost formulas work great, including chicken, horse, and cow manure as a source of nitrogen and microbes.

Vessel: This mushroom grows best in horizontal surfaces, so trays that are 6 to 12 inches (10 to 30 cm) in depth, or plastic bags weighing 40 to 60 pounds (18 to 22 kg) are the standard for the industry. You can scale down depending on how many mushrooms you are growing.

Colonization conditions:

- ✓ Temperature: 70º to 77º F (23º to 25º C)
- ✓ Humidity: 90 to 100%.
- ✓ Duration: Around 18 to 20 days.
- ✓ Light: no light is needed.

Pinning stage conditions:

- ✓ Temperature: 60º to 65º F (16º to 18º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 12 to 18 days.
- ✓ Light: no light is needed.

Fruiting stage conditions:

- ✓ Temperature: 60º to 65º F (16º to 18º C)
- ✓ Humidity: 85 to 90%
- ✓ Duration: 4 to 7 days.

- ✓ Light: No light is needed.

Harvest: The mushrooms should be harvested when they are broadly convex but not plane. Twist the mushrooms from the bed, trim them, and set them with the stems down in a collecting basket. This is a mushroom that can be sold for a very high value per pound. Young, close capped Portobello mushrooms are being marketed under the name of “Cremini” – quite delicious.

Nutritional content and medical benefits: The FDA designated Button mushrooms as healthy foods because they are low in fat and have no cholesterol. This mushroom contains compounds that inhibit the enzyme aromatase, which is associated with tumor growth.

(Taken from unsplash.com)

◦ Shiitake Mushroom (Lentinula edodes)

Shiitake is another famous mushroom specie known for its delicious uses in the kitchen. Well, actually, that was an understatement. Shiitakes figure as one of the most popular of all gourmet mushrooms.

They are a traditional delicacy in Japan, Korea, and China. For many years, Shiitake have been grown on logs, outdoors, in the mountainous regions of Asia. Common names of this mushroom include Golden Oak Mushroom, Black mushroom, Black Forest mushroom, Oakwood mushroom, and more.

Method of cultivation: Shiitakes can be harvested outdoors, on hardwood logs, especially oak, sweetgum, poplar, cottonwood, eucalyptus, alder, ironwood, beech, birch, willow, and many other non-aromatic, broadleaf woods. The denser hardwoods can produce mushrooms for as long as 6 years. The fruitwoods are poor growing Shiitakes.

The cultivation of Shiitake mushrooms in logs for a large-scale production has proven to not be very profitable; however, it can be a nice option for a smaller income. In the past several decades, the cultivation method of Shiitakes has evolved to indoor cultivation, using supplemented sawdust-based substrates treated with heat. This method is quicker and more profitable compared to growing on logs.

Substrate: Hardwood-based substrate, amended with a nitrogen-rich supplement, such as rice bran, wheat bran, rye bran, oatmeal, wheat flour, and more. The mixture is moistened and packed into heat-tolerant plastic bags to be sterilized and then inoculated with gran or sawdust spawn.

These are what growers call “Shiitake supplemented-sawdust blocks”. A good formula for the substrate includes sawdust, chips, rice, or rye bran, and is buffered with gypsum. This is ideal for high-yield production. If you are growing Shiitakes outdoors, you will need to use logs of any of the hardwoods we mentioned above – preferably oak.

Vessel: Usually, what works best are polypropylene, high-density, thermotolerant, polyethylene bags, fitted with a filter patch. This way, the contaminants can be isolated.

Colonization conditions:

- ✓ Temperature: 70º to 80º F (21º to 27º C)
- ✓ Humidity: 95 to 100%.

- ✓ Duration: Around 35 to 70 days.
- ✓ Light: “Skylight”, no direct sunlight (50 to 100 lux)

Pinning stage conditions:

- ✓ Temperature: 50º to 70º F (10º to 21º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 5 to 7 days.
- ✓ Light: “Skylight”, no direct sunlight (500 to 2,000 lux)

Fruiting stage conditions:

- ✓ Temperature: 50º to 70º F (10º to 21º C)
- ✓ Humidity: 60 to 80%
- ✓ Duration: 4 to 7 days.
- ✓ Light: “Skylight”, no direct sunlight. (500 to 2,000 lux).

Harvest: Mushrooms should be trimmed flush from the surface of the sawdust blocks with a sharp knife, being careful that no stem butts remain since this will quickly transform into sites for mold and insects. Be careful with your thumbs when you cut your mushrooms, as the pressure needed to cut through them needs to be substantially greater than that of most fleshy mushrooms.

The mushrooms can be harvested when the margins are still enrolled, at a mid-adolescent stage. However, greater yields are produced if the fruitbodies are allowed to grow bigger.

Nutritional content and medical benefits : This mushroom can also help fight cancer, using lentinan, a water-soluble polysaccharide that can be extracted from the mushrooms. In the past decades, more than a hundred research papers have been published on the chemical constituents of these mushrooms covering their health stimulating properties. It can boost the immune system, lower cholesterol levels, harden arteries, fight diabetes, eczema, colds, and flu, as well as acting as an anti-aging agent.

(Taken from directoalpaladar.com)

- # The Himematsutake Mushroom (Agaricus Agaricusblazei)

We haven’t mentioned this type of mushroom so far because it is quite rare. It isn’t very easy to find mushroom spawn for the Himematsutake, but it is still worth mentioning due to its medicinal benefits.

The primary market for this mushroom takes place in Japan, followed by China and Brazil. Its commercial cultivation in the United States began just recently. It prefers warmer temperatures and outdoor cultivation, so it can be grown only in the southern United States, or during the summer months in the temperate regions of the world.

It has the general appearance of an oversized Portobello, but with a beguiling almond fragrance and flavor that the Portobello doesn’t count with. Its common names are Almond Portobello, Mushroom of God, King Agaricus, and Royal Sun Agaricus.

Method of Cultivation: This mushroom thrives from soil microflora and warm temperatures, making it an ideal candidate for outdoor growing in the tropics and subtropics during the warmest months. To expand the mycelia using agar culture, it is best to transfer the agar culture to grain (rye grain).

Substrate : Enriched composts or pasteurized substrates supplemented with nitrogenous additives, like bran, chicken manure, urea, and more. It is similar to the Button mushrooms, so it is a natural lover of well-composted substrates enriched with nitrogen that are then inoculated with grain spawn.

Vessel: Plastic “mega-bags” weighing 22 to 50 pounds (10 to 23 kg), and/or plastic or wooden trays. The trays should have adequate drainage and a layer of non-organic material for aeration (like perforated plastic) to provide good airflow.

Colonization conditions:

- ✓ Temperature: 70º to 80º F (21º to 27º C)
- ✓ Humidity: 90 to 100%.
- ✓ Duration: Around 28 to 40 days using compost; 60 to 90 days on sawdust.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 70º to 75º F (21º to 24º C)
- ✓ Humidity: 80 to 90%
- ✓ Duration: 17 to 25 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 75º to 80º F (24º to 27º C)
- ✓ Humidity: 75 to 85%
- ✓ Duration: 4 to 8 days.
- ✓ Light: Minimal. No direct sunlight. Exposure to enough light increases yields.

Harvest: The best time to harvest this mushroom is when the mushrooms still have an intact partial vein covering the gills.Once harvested, the cultivators need to drop the temperatures to extend the shelf life. They should be quickly refrigerated.

Nutritional content and medical benefits : Protein content in this mushroom can range between 37 to 48%, making it one of the most protein-rich mushrooms. The unique polysaccharides that Himematsutake produce promote natural killer cells that are selectively cytotoxic on tumor cells.

Agaricus Blazei Murril (Himematsutake)

(Taken from gluckzpilze.com)

◦ The Enoki Mushroom (Flammulina velutipes)

We have mentioned this mushroom multiple times as well throughout this book. These mushrooms have small caps and long stems that make them very different than other types. This unusual shape makes the harvesting of Enoki quite easy.

An interesting fact about this mushroom is that as it usually grows in late fall through early winter, in the wild, it is capable of freezing, thawing, and continue to grow. Common names include Enokitake (as we have mentioned before), Nametake, the Winter Mushroom, and more.

Method of cultivation: This type of mushroom thrives on hardwood. Many growers recommend cultivating them indoors, especially if you live in a rather warm area. The rapidly decomposing hardwoods such as alder, cottonwood, willow, aspen, and poplar are recommended for this mushroom. Use grain spawn to inoculate the substrate.

Substrate: As we mentioned, a wide variety of hardwoods will work well, and some softwoods as well (Douglas fir), although the latter tend to be in general less productive. You will need a supplemented sawdust recipe for this mushroom, like the formulas we mentioned earlier.

Vessel: Japan is the leader in the Enoki market, and most automated farms use polypropylene bottles for ease of handling and speed of harvesting. You can use the bottle method we described earlier in the Different Growing Methods section of the book. Note that you can add a cylinder of plastic or paper and fit it within the open top of each bottle, to cause the stems to grow long and facilitate harvesting.

You can also grow this mushroom in bags, but keep in mind that the sidewalls of the bags should extend 6 inches above the plane of the fruiting surface to encourage the growth of long stems. The walls are stripped down just before the harvesting stage.

Colonization conditions:

- ✓ Temperature: 70º to 75º F (21º to 24º C)
- ✓ Humidity: 95 to 100%.
- ✓ Duration: Around 14 to 18days.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 40º to 50º F (4º to 10º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 3 to 5 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 16º C)
- ✓ Humidity: 90 to 95%
- ✓ Duration: 5 to 8 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest: If you are growing in bottles, grab the cluster firmly and pull. Trim any residual matter off with a knife or a pair of scissors. You can harvest them before the gills mature; it will extend their shelf life. In the market, Enoki mushrooms are usually found vacuum-packed, in packages of about 7 ounces apiece, and tend to have a good shelf life after being bought.

Nutritional content and medical benefits: These are highly nutritious mushrooms, making them a great addition to your diet**.** They contain a wide variety of vitamins and minerals, including vitamin B3, B5, B1, B2, iron, calcium, copper, and more. It has also shown to have beneficial actions against Sarcoma.

(Taken from YouTube.com)

- # The Maitake Mushroom (Grifoldafrondosa)

This mushroom is quite delicious – that goes without a doubt. It is a famous species worldwide, and it is used in many different recipes for both its flavor and medicinal properties. It is large and fleshy, dark gray-brown when young, becoming lighter gray when it gets bigger. It usually fruits at the base of dead or dying trees; especially oaks, elms, maples, and beech. It is known as Hen-of-the-woods in the United States.

Method of Cultivation: In the wild, Maitake are usually seen growing on hardwood stumps or buried logs. Stumps don't necessarily have to be "virgin." Maitake is well known for attacking trees that have already been parasitized by other fungi. It can also be grown indoors using sawdust.

Substrate: For indoor cultivation, hardwood sawdust, using a recipe of sawdust, chips, and bran works great. It works well with oak, poplar, cottonwood, elm, willow, and alder; however, the most recommended is oak. Outdoor cultivation involves the inoculation of logs, using one of the hardwoods we previously mentioned.

Vessel: Polypropylene bags with filter patches (mushroom grow bags). Polypropylene bottles and buckets have also been used successfully.

Colonization conditions:

- ✓ Temperature: 70º to 75º F (21º to 24º C)
- ✓ Humidity: 95 to 100%.
- ✓ Duration: Around 14 to 30days; then it will remain dormant for 30 days.

No light requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 15º C)
- ✓ Humidity: 95%
- ✓ Duration: 5 to 11 days.
- ✓ Light: Minimal. No direct sunlight.

Development of the Frond

- ✓ Temperature: 50º to 60º F (10º to 15º C)
- ✓ Humidity: 90%
- ✓ Duration: 10 to 14 days.

- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 55º to 60º F (13º to 16º C)
- ✓ Humidity: 75 to 85%
- ✓ Duration: 14 to 22 days.
- ✓ Light: Partial shade. No direct sunlight.

Harvest: Maitake will be at the perfect stage for harvest once the leaflets fully extend and its edges darken a bit. You know that your Maitake have begun to spoil when they emit a certain odor. Don't overwater your Maitake, as it can quickly cause the fruitbodies to abort their growth. Wrap your mushrooms in rice paper and refrigerate them to extend their shelf life for at least 2 weeks.

Nutritional content and medical benefits: Maitake are approximately 27% protein and contain vitamins such as vitamin B1, B2, vitamin D, and vitamin C. The Maitake is the only mushrooms announced to have anti-HIV activity, as studied by both American and Japanese researchers. They are also rich in antioxidants, beta-glucans, copper, potassium, fiber, amino acids, and minerals. They are a great addition to your diet, if you had any remaining doubts!

(Taken from dieti-natura.es)

Oyster Mushrooms

Oyster mushrooms, as we have mentioned multiple times before, are by far the easiest mushrooms to grow, and also the least expensive. For small cultivators or beginners, with limited budgets, Oyster mushrooms are simply the best path to take. They provide a clear way to enter the gourmet mushroom industry or to get to know the wonders of mushroom cultivation.

There aren't many mushrooms that demonstrate such aggressiveness and productivity as this species. They thrive on most all hardwoods, wood by-products, straws, sugarcane bagasse, coffee residues, banana fronds, soy pulp, cardboard, and many other substrates.

They are just a very forgiving, amazing species to grow. Also, the colors of this type of mushroom display a literal rainbow: white, blue, gray, brown, gold, yellow, and even pink! It is just great.

Since every species has its needs and requirements, let's take a look at each variety separately to help you understand which of them will work better for you.

◦ Golden Oyster (Pleurotus citrinopileatus)

This is the one with a breathtaking yellow that is simply spectacular. Truly, one of the best mushrooms out there when it comes to physical appearance. It is also considered a tropical mushroom since it prefers rather warm temperatures.

Substrate: The substrate you use will depend on your decision. It can be grown indoors in pasteurized wheat, cottonseed hulls, chopped corncobs, hardwood sawdust, sugarcane bagasse, paper by-products, banana fronds, coffee grounds, peanut hulls, pasteurized straw, and more! It can also grow in hardwood logs or stumps.

Vessel : Perforated plastic bags or columns, trays, bottles, and buckets.

Colonization conditions:

- ✓ Temperature: 75º to 85º F (24º to 29º C)
- ✓ Humidity: 90 to 95%.
- ✓ Duration: Around 10 to 14days.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 70º to 80º F (21º to 27º C)
- ✓ Humidity: 98 to 100%
- ✓ Duration: 3 to 5 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 70º to 85º F (21º to 29º C)
- ✓ Humidity: 90 to 95%
- ✓ Duration: 3 to 5 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest: Harvest the mushrooms by cutting the base of the whole cluster. That way you avoid damaging mushrooms individually.

(Taken from projectnoah.org)

- # Pink Oyster Mushroom (Pleurotus djamor)

This mushroom is quite beautiful as well since it shows a brilliant pink color that no other mushroom seems to have. It is known for its speed to fruiting, adaptive ability to flourish on a wide variety of substrates, and its high-temperature tolerance.

It is so aggressive it is capable of colonizing bulk substrates without first being pasteurized. It is also known as the Salmon Oyster, Strawberry Oyster, and Flamingo Oyster. It prefers tropical and subtropical temperatures, as well as hardwoods from those regions.

Substrate: Hardwood sawdust, pasteurized straw, corn waste, coffee grounds, banana fronds, sugarcane bagasse, and even cotton waste. Brazilian growers have developed a formula mixing sugarcane to rice bran, rice straw, and calcium carbonate.

On a large scale, the proportions are 100:8:3:2, in the order previously mentioned; being 100 pounds sugarcane, 8 pounds rice bran, 3 pounds rice straw, and 2 pounds calcium carbonate.

The mixture is mixed, moisturized, and pasteurized. It appears to have an incredible yield.

Vessel: Plastic mushroom grow bags, trays, racks, or buckets.

Colonization conditions:

- ✓ Temperature: 75º to 85º F (24º to 29º C)
- ✓ Humidity: 95 to 100%.
- ✓ Duration: Around 7 to 10days.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 65º to 75º F (18º to 25º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 2 to 4 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 70º to 85º F (20º to 30º C)
- ✓ Humidity: 85 to 90%
- ✓ Duration: 3 to 5 days.

✓ Light: Minimal. No direct sunlight.

Harvest: Pick your mushrooms when they moderately young. Be careful not to bruise the brilliantly colored gills. These mushrooms spoil quite quickly, so make sure to keep that in mind. It won't last much longer than 4 or 5 days from the date of harvest. In the market, you can find this mushroom both fresh and dried.

(Taken from Urbanspore.com)

◦ King Oyster (Pleurotu seryngii)

This mushroom is by far the best tasting for the Oyster mushrooms; so its name is very well suited. It is the king when it comes to that. It is also one of the largest species when it comes to Oysters. This one is very easy to grow, too. It can be found in the wild throughout southern Europe, North Africa, Central Asia, and southern Russia.

Substrate : Most hardwoods, wheat straw, cottonseed hulls, pasteurized straw, and supplemented sawdust.

Vessel: Trays, plastic grow bags, plastic columns, bottles, and buckets.

Colonization conditions:

- ✓ Temperature: 75º F (24º C)
- ✓ Humidity: 90 to 95%.
- ✓ Duration: Around 12 to 16days.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 15º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 4 to 6 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 60º to 70º F (15º to 21º C)
- ✓ Humidity: 85 to 90%
- ✓ Duration: 4 to 9 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest : This is a species that can grow quite large if the substrate has enough nutritional content. The stage at which it should be harvested depends on the cultivator's choice and preference. Some I prefer harvesting them before the cap margin flattens out completely, and the margins are incurved.

This is an adolescent stage. You can try multiple ways and see what works best for you. A great way of eating this mushroom is by stir-frying it until the edges become a crispy golden brown. It goes great with Italian dishes, especially with fish and pork.

(Taken from unsplash.com)

○ The Tree Oyster Mushroom (Pleurotus ostreatus)

This mushroom can be found distributed throughout the temperature and tropical forests of the world. In the wild, it grows on broadleaf hardwood in the spring and fall, especially cottonwoods, oaks, alders, maples, aspens, ash, beech, elm, willows, birch, and poplars.

It occasionally appears on composting bales of straw, and in some parts of Mexico, on the waste pulp from coffee production. It has a sweet, rich, almost almond-like fragrance that is very pleasant. Common names of this mushroom include the Oyster Mushroom, Oyster Shelf, Tree Oyster, Straw Mushroom, and Hiratake (Japanese for “Flat Mushroom).

Substrate: In the wild, it grows on logs or stumps, so it can be cultivated outdoors in logs, inoculated using sawdust spawn. Indoors, a wide array of agricultural and forest waste products can be used to grow this mushroom, including straw (wheat, rye, oat, rice, and barley straw), cornstalks, sugarcane bagasse, coffee pulp, banana waste, cotton waste, hardwood sawdust, soybean waste, and even paper by-products. Great yields have been reported after using coffee pulp that was fermented for 5 days, pasteurized, and inoculated with wheat grain spawn (almost 132% of biological efficiency!).

Vessel: Mushroom growing bags, trays, buckets, plastic columns.

Colonization conditions:

- ✓ Temperature: 75º F (24º C)
- ✓ Humidity: 85 to 95%.
- ✓ Duration: Around 12 to 21days.
- ✓ No light requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 15º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 3 to 6 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 60º to 70º F (15º to 21º C)
- ✓ Humidity: 85 to 90%
- ✓ Duration: 4 to 8 days.

✓ Light: Minimal. No direct sunlight.

Harvest : Mushrooms are best picked when they are still young, preferably in clusters. Once the gills produce spores, the storability of the mushrooms quickly declines, so make sure to keep that in mind. When they are packed to be sold, the mushrooms are chilled at 35º F (1º or 2º C) and then placed into containers, covered with breathable plastic film.

(Taken from unsplash.com)

◦ The Phoenix or Indian Oyster Mushroom (*Pleurotus pulmonarius*)

This mushroom is exceedingly easy to cultivate. It is especially aggressive on alder, cottonwood, poplar, oak, maple, aspen, and elm. It has a grayish-white to beige color or sometimes pinkish, or orangish tones.

At high temperatures, the cap is lighter in color; under cold conditions, the cap becomes very dark gray. Common names include The Indian Oyster, The Phoenix Mushroom, Dhingri (in northern India) and is often mistakenly referred to as *Pleurotussajor-caju.*

Substrate: Grain spawn should be sown directly into pasteurized straw or sterilized hardwood sawdust. However, it is broadly adaptive, being able to grow in cereal (wheat and rice) straws, cornstalks, sugarcane bagasse, coffee grounds, cotton waste, and numerous other forest waste by-products.

Vessel: Perforated plastic bags, plastic columns, trays, buckets, and bottles. It can also be grown in logs.

Colonization conditions:

- ✓ Temperature: 75º to 85º F (24º to 29º C)
- ✓ Humidity: 90 to 100%
- ✓ Duration: 8 to14 days.
- ✓ Light: no requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 75º F (10º to 24º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 3 to 6 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 65º to 75º F (18º to 24º C)
- ✓ Humidity: 85 to 90%
- ✓ Duration: 3 to 5 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest: This mushroom grows very quickly, so the timing of harvest is critical to the quality of the overall crop. If the mushrooms are picked at full maturity, they are very quick to rot. Often, new mushrooms form

where the old mushrooms have been cut; this is a trait not generally seen in other Oyster species.

(Taken from healing-mushrooms.net)

○ The King Stropharia (Stropharia rugosoannulata) a.k.a. Wine Cap.

This mushroom is quite adaptive when it comes to outdoor cultivation. It is popularly grown in Europe in outdoor beds. It is known for its burgundy color when it is young, and its mammoth size, as well. One downside of growing this mushroom is that it is quite a slow grower. The time from spawning to cropping is nearly 8 to 10 weeks.

The most practical method, given time, effort, and money, is in outdoor shaded beds of wood chips and straw. Common names for this mushroom include Garden Giant, Burgundy mushrooms, Wine Cap, and Godzilla Mushrooms.

Method of cultivation: In the wild, it grows in hardwood forests or soils rich in undecomposed woody matter, especially common in the wood chip mulch. The preferred method of cultivation for this mushroom is inoculating wood chips with sawdust/chip spawn in patch or bed outdoors. However, it can be cultivated indoors as well.

Substrate: For indoor cultivation, pasteurized straw or sterilized sawdust, inoculated with grain spawn. Once it is colonized, a soil rich in microbes is placed upon the substrate to promote fruiting. This is called a casing layer. This soil can be treated beforehand to kill insects, but should not be exposed to temperatures higher than 140º F (60º C). Also, spent substrates from Shiitake or Oyster production block (sawdust/chips/bran) can be resterilized for the production of this mushroom.

Vessel: Large plastic growing bags or trays.

Colonization conditions:

- ✓ Temperature: 70º to 80º F (21º to 27º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 25 to 45 days.

Light: no requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 16º C)
- ✓ Humidity: 95 to 98%
- ✓ Duration: 14 to 21 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 60º to 70º F (16º to 21º C)
- ✓ Humidity: 90 to 95%
- ✓ Duration: 7 to 14 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest: For best flavor, pick this mushroom before or at the time the veil is tearing along the cap margin. Once you see the gills become dark gray, it means the production of spores has begun, and its edibility declines quite a lot. This mushroom can be sold at farmer's markets, usually by small organic farms. The price ranges from $4 to $7 per pound.

Nutritional content and medical benefits: This mushroom doesn't appear to have many medicinal benefits, but when it comes to its nutritional content, it has been found that they contain fiber, vitamin D, protein, iron, copper, and even some calcium. One thing is for sure, and that this mushroom should not be consumed for more than 3 days in a row. It appears that the body fails to rebuild the enzymes necessary for its digestion, resulting in bad cases of indigestion and/or nausea.

(Taken from YouTube.com)

◦ Lion's Mane (*Hericium erinaceus*)

This is one of the few mushrooms capable of providing the flavor of lobster after being cooked, which makes it a very particular species of mushrooms. It produces a mane of cascading white spines, which is a very peculiar shape. It is typically white until it ages, then turns brown or yellow-brown.

This mushroom has gained new attention due to its medicinal properties. It is fairly easy to grow, as we have mentioned throughout this book. Its common names are quite hilarious, though; they include Monkey's Head, Sheep's Head, Old Man's Beard, Bear's Head, and Yamabushi-take (Japanese for Mountain-Priest Mushroom).

Method of cultivation: In the wild, it is usually found on dying or dead oak, walnut, beech, maple, sycamore, and other broadleaf trees. It can be grown inoculating logs or stumps outdoors using sawdust or plug spawn. Experts recommend burying the inoculated 3 or 4 foot long logs to one-third of their length into the ground, in a naturally shaded location.

Substrate: It can be grown on sterilized sawdust supplemented with rice bran for indoor cultivation. Outdoors, it can be grown using the traditional log method first established for Shiitake.

Vessel: Plastic growing bags or logs.

Colonization conditions:

- ✓ Temperature: 70º to 75º F (21º to 24º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 10 to 15 days.
- ✓ Light: no requirements.

Pinning stage conditions:

- ✓ Temperature: 50º to 60º F (10º to 16º C)
- ✓ Humidity: 95 to 100%
- ✓ Duration: 3 to 5 days.
- ✓ Light: Minimal. No direct sunlight.

Fruiting stage conditions:

- ✓ Temperature: 65º to 75º F (18º to 24º C)
- ✓ Humidity: 90 to 95%
- ✓ Duration: 4 to 7 days.
- ✓ Light: Minimal. No direct sunlight.

Harvest: The mushrooms should be harvested when the spines dramatically elongate, but before the top of the fruitbody softens and becomes yellowish or pink. The humidity of the growing room should be lowered to 80% 4 to 8 hours before harvesting to reduce surface moisture and extend the shelf life of the mushrooms.

Nutritional content and medical benefits : This mushroom has proven to contain protein, iron, magnesium, calcium, fiber, and many more minerals. In addition, researchers have found that it is effective on ulcers, inflammations, and tumors of the alimentary canal. It can reduce the risk of heart disease, manage diabetes symptoms, helps relieve mild symptoms of depression and anxiety, and research has been conducted to determine if it could protect against dementia.

(Taken from curativemushrooms.com)

Mushrooms come in thousands of species, all with unique characteristics regarding their growing conditions, health benefits, physical shape, and more. It is truly a world of different paths in which you can wander and learn from all of them. Only a few species were outlined here to give you a general idea of which mushrooms are easier to grow at home, and to help you get started on this journey.

However, I encourage you to continue educating yourself on the many different species out there.

Out of the top of my head, I can name the Black Poplar Mushroom, the Shaggy Mane, the Beech mushroom, the Chestnut Mushroom (Kuritake),

the Nameko Mushroom, the Paddy Straw, and many more. Keep researching and finding new ways to experiment with homegrown mushrooms!

Now, it is time to discuss a crucial aspect of mushroom cultivation. To enjoy our mushrooms in the kitchen, we need to make sure we know how to deal with all the possible problems that we can encounter. Let’s dive into the different problems you might find while growing mushrooms and how to solve them.

Troubleshooting

The process of growing mushrooms is amazing, but it isn't always perfect. In this section, we will go over the most common problems when growing mushrooms, their probable cause, and the best way to tackle them to keep them from ruining your will to keep growing little mushrooms. Sometimes they can be hard to maintain, but they are completely worth the try. Most of these problems can be prevented by following the sterilization parameters and hygiene maintenance.

Sometimes, the cause behind the problems is the cultivator himself. No, I'm not accusing you of anything. I'm just saying that we are all humans, and we can make mistakes. Your manners and the way you deal with your substrate and culture can affect them directly, so make sure to keep that in mind. One good tip to help you determine the cause of possible problems is always leaving one petri dish (if you are inoculating your spawn yourself), spawn jar, sawdust bag, etc. without inoculation. This can help you determine if the possible contaminants are unique to the substrate preparation process or the inoculation method.

Possible problems using straw as a substrate

- ➢ Mushrooms fail to form
  - Cause 1: Improper initiation conditions.
  - Solution: Consult colonization conditions explained in the previous chapter for each species. Alter moisture levels, temperature, light, air exchanges, and more.
  - Cause 2: Bad spawn
  - Solution: obtain spawn from high-quality companies.
  - Cause 3: Chlorinated or contaminated water
  - Solution: Use activated charcoal water filters to eliminate contaminants in the water.

- ➢ Mycelium produces aborted mushrooms
  - Cause 1: Improper fruiting stage conditions
  - Solution: double-check necessary conditions for each species.
  - Cause 2: Bad spawn.

- Solution: Obtain spawn from high-quality companies.
- Cause 3: Mite contamination
- Solution: Disinfect and begin from zero.

➢ Second and third flushes aren't produced.
- Cause 1: Insufficient spawning rate in relation to the substrate.
- Solution: Increase the spawning rate.
- Cause 2: Bad spawn
- Solution: Obtain spawn from high-quality companies.
- Cause 3: Mismanagement of the growing room.
- Solution: Be mindful of your steps in the growing room and improve up to the last detail.

➢ Green and black molds begin to appear on the straw.
- Cause 1: Insufficient pasteurization.
- Solution: Increase the time for pasteurization to ensure all contaminants are killed.
- Cause 2: Inoculation with temperatures too high
- Solution: Lower the temperature at which you inoculate the substrate.
- Cause 3: Prolonged exposure to carbon dioxide levels.
- Solution: Increase air exchanges.

Possible problems using sawdust as a substrate

➢ Mycelium fails to colonize the substrate
- Cause 1: Bags inoculated too hot
- Solution: Allow the substrate to cool before inoculating.
- Cause 2: Inadequately mixing the spawn through the sawdus
- Solution: Improve mixing or spawn rate.
- Cause 3: Mismatch of mycelium and wood type
- Solution: Make sure to double-check the woods native to the mushroom.
- Cause 4: Sawdust over-sterilized.
- Solution: Decrease the sterilization time.

➢ Mycelium grows and then stops, accompanied by odors, slimy fluids, green or black molds.
- Cause 1: Contaminants present in the substrate; due to

inadequate sterilization or being introduced by the person handling the substrate.

- Solution: Increase the conditions of the sterilization process (time and temperature). And make sure to keep good hygiene during the process. Throw the harvest away, making sure it doesn't come in contact with any other harvests.
- Cause 2: Contaminated during cool down.
- Solution: Filter air during cool down.
- Cause 3: Grain or sawdust spawn infected beforehand.
- Solution: Make sure to use clean spawn in any substrate.

Possible problems during the pre-harvest period

➢ Mushroom fail to be produced

- Cause 1: Mismatch of spawn with substrate formula.
- Solution: Double-check the compatibility of the spawn, and revise the substrate formula.
- Cause 2: Presence of virus, bacteria, or contaminants
- Solution: Use clean spawn and substrate.

Possible problems during the harvest stage

➢ Mushrooms grow, but the stems are too long and the caps underdeveloped.

- Cause 1: Inadequate amount of light.
- Solution: Increase or decrease the amount of light depending on the species.
- Cause 2: Excessive amounts of CO2.
- Solution: Increase air exchanges.

➢ Mushroom begin to form, but abort or stop

- Cause 1: Poor environmental conditions
- Solution: Double-check the right conditions for each species and adjust.
- Cause 2: Presence of competitors such as mold or bacteria.
- Solution: Reconsider all steps of the process and the proper sterilization and maintenance of the workroom. Adjust moisture levels or air exchanges.
- Cause 3: Bad spawn.
- Solution: Acquire new spawn of high-quality.

➢ Mushrooms appear deformed
- Cause 1: Presence of competitor organisms, such as bacteria
- Solution: Rebalance growing conditions to favor your mushrooms.
- Cause 2: Improper air circulation.
- Solution: Increase air circulation; make sure your mushrooms can breathe.
- Cause 3: Excessive humidity or watering.
- Solution: Reduce humidity to correct levels. Remember that your mushrooms need to have some moisture, but they shouldn't be soggy.

➢ Mushrooms fail to produce second flushes.
- Cause 1: Inadequate substrate nutrition. Your mushrooms don't have more nutritious content to feed on.
- Solution: Reconsider your substrate formula and reformulate
- Cause 2: Presence of competitors stopping further growth.
- Solution: Make sure to keep proper hygiene in the workroom and to follow sterilization processes.
- Cause 3: Poor growing room management.
- Solution: Improve the management you use in the growing room. Reconsider your steps and the carefulness in every detail.

➢ Flies in the growing room, disturbing the process.
- Cause 1: Inadequate pasteurization.
- Solution: Extend the pasteurization period, adjusting the values if necessary.
- Cause 2: Open doors or windows allowing insects inside.
- Solution: Improve seals at doors and windows to keep them from entering.
- Cause 3: Inadequate cleanup of the growing room between cycles.
- Solution: Thoroughly wash every part of the room using bleach. Use bug traps, or incorporate small tree frogs to the growing room to eat the flies. Each frog can consume 20 to 100 flies a day.

Possible problems after harvesting the mushrooms

➢ Mushrooms are too quick to spoil

- Cause 1: Harvesting the mushroom too mature.
- Solution: Make sure to harvest them when they are still young. This might take a little trial and error.
- Cause 2: Mushrooms are too wet when harvested.
- Solution: Reduce the humidity levels of the room hours before harvesting, or bring the vessel out to a drier location.
- Cause 3: Mushrooms improperly packaged.
- Solution: Your mushrooms need to breathe. Make sure to package them in breathable containers. Cellophane or anti-condensate wrapping films are recommended.

General variables that can cause problems

➢ **Incorrect moisture levels.**

This is something you need to keep in mind when growing any type of mushroom. The incorrect amount of moisture or humidity in your substrate or growing room can lead to very unpleasant situations, like mold growing in the substrate. Keep in mind that mushrooms, in the wild, usually grow in areas with rainy weather or near wet regions. However, they won't grow if the ground, or substrate, remains soggy at all times. They need to be in an environment where they are moist, but not damp.

If they have low moisture levels, they won't grow nicely, or at all, but if they have too much, you can be setting yourself up for a whole lot of problems. Make sure to always double-check the amount of moisture your mushrooms need in their special requirements. You can use a spray bottle to mist your mushrooms. That way you can make sure you are not using more water than they can handle. Make sure the substrate isn't dripping or there is water sitting in pools.

➢ **Contamination**

Yes, I bet you are getting tired of this word already, but it is necessary to bring it up in this section. There's no need to explain once again the number of problems a poor sterilization and hygiene can bring, so make sure to follow each precaution with care. This will be the difference between a successful growing process and a failure.

➢ Bad Spawn or Mycelium

The list outlined before shows how having spawn of bad quality can affect your growth. This is true for several species and methods, so it must always be considered. Unfortunately, there's not so much you can do about this when it happens; it is out of your hands. And the bitter part of it is that you can't tell if there is something wrong with the mushroom spawn or mycelium until after you have attempted to grow it; so it all feels like a slap across the face. Since so many mushrooms take so long to grow, it could be months before you even know if the spawn wasn't good. The only thing you can do is buying spawn from reputable companies with high-quality products. Also, make sure you buy your spawn locally, or find a way to have it delivered to you quickly, to reduce the time it spends in transit.

➢ Pests and diseases

This is more of a problem with outdoor growing methods. Indoors, you shouldn't be concerned with snails eating your Shiitake mushrooms on logs. No, but seriously. Slugs and snails love mushrooms. If you want to grow mushrooms in logs outside, you will need to keep an eye out for these little animals, or they will eat your entire harvest, and then they won't even leave a thank you note. If you see a slug, remove it immediately and check the area for others – there are always more. You can try elevating the logs off the ground so the slogs can't get to them as easily. You can get a couple of products that can get rid of slugs and snails.

Turkey Tail is another headache for outdoor growing. This is another fungus that won't think twice about stealing your mushrooms' space while you grow them in logs. To reduce the change of being invaded by this fungus, inoculate your logs quickly and make sure to always use the wax to seal the holes. Mice, squirrels, rabbits, and other mammals can also try to feed off your delicious harvest. You can set up fences to keep them away.

If you ever spot mold in your growing substrate, the best thing you can do is throw the whole thing away. Dispose of it far from your growing space. Once the substrate is infected, it is highly unlikely that the mycelium will survive. Make sure to improve your sterilization and pasteurization processes to avoid any bad experiences with mold.

- **Not enough fresh air**

This is another problem outlined in the previous list, but it is necessary to bring it up again. Your mushrooms need fresh air to grow properly, especially during the fruiting stage. Without fresh air, they might not grow at all. During the colonization stage, fresh air should be filtered to avoid contaminants, though. Fresh air is capable of speeding up the colonization progress, as well.

How to Include Mushrooms in Your Diet? Tips and Recipes.

This is one of the best parts of the process: enjoying the fruits of your hard labor. Many people learn how to grow mushrooms solely for the privilege of being able to enjoy them as fresh as possible, right out of their garden, and onto the frying pan. T

his truly is a privilege, since store-bought mushrooms tend to lose a big part of their flavor and nutritious content during the ride to the store. Mushrooms are versatile, healthy, flavorful, and gourmet. They can enhance every meal.

They are multidimensional in their flavor qualities, appealing to both vegetarians and meat-eaters.

In this section, you will read about delicious recipes that are easy to make at home. You will learn that you can take regular dishes that you are already making for your family and give them a very flavorful turn by simply adding your mushrooms.

Mushrooms are capable of bringing color, health, and even profit to your life, and we are here to teach you how.

So, let’s discuss the many possibilities that your mushrooms can offer you to improve your cooking skills.

We have prepared a list of easy-to-make recipes that will make you look like a pro in the kitchen.

Let’s dive in!

➢ **Brown Butter Creamy Mushroom Orecchiette**

I mean, who doesn't love pasta? Add some mushrooms to it and you will find yourself coming back to it regularly. The fun thing about this recipe is that it is supposed to keep things nice and unspecific, which means that you don't have to worry about quantities and specific instructions.

This is a relaxing recipe that will light up your entire week. It is easy to make, and fun to experiment with, depending on your likes. It is a perfect recipe for a Sunday at home when you are feeling in the mood of cooking something fresh, delicious, and healthy for your family or friends. Once you try to make it (and succeed) you will probably want to make it a regular dish in your life.

Ingredients:

- ✓ Butter
- ✓ Sliced mushrooms (Shiitake, Maitake, or King Trumpet)
- ✓ Heavy cream
- ✓ Orecchiette (Pasta)
- ✓ Salt
- ✓ Parmesan Cheese
- ✓ Chives (optional)

Instructions:

Start by browning a good amount of butter in a pan —exactly how much depends on your mood. As the butter begins to brown, add a handful of

sliced mushrooms and let them cook down. You can even add a mixture of Shiitake, Maitake, or King Trumpet, but you can also add only one if you'd like.

After the mushrooms are cooked and browned along with the butter, add the heavy cream — it doesn't need to be much, only enough to give it a creamy texture, it will depend on what works best for you.

While the mushrooms continue to brown, fill a pot with water and bring it to a boil. Once it is boiling, add some heavy amounts of salt (you always need more salt than you think, so don't be afraid of it), and add a box of orecchiette.

You can also experiment and try with different types of pasta; some spaghetti should work just fine. For the orecchiette, you can cook it a minute under the suggested boiling time in the package if you would like your pasta to be *al dente* . Once the pasta is ready, drain it and add it to the pan with the buttered mushrooms.

Mix it well and add a bunch of Parmesan cheese. Keep on mixing until your pasta looks creamy and delicious. Sprinkle a handful of chopped chives for a pop of color. Once served, top it with more parmesan cheese. Go crazy if you'd like

➢ **Chicken with Creamy Mushroom Sauce**

You may have noticed a similarity; and yes, before you ask, mushrooms taste amazing with anything that has “creamy” on it. This recipe is about a crispy and tender chicken baked to perfection and accompanied by the most delicious mushroom sauce that can be easily made from scratch at home.

This is one of those recipes that you can cook any day of the week, and you will continue to crave it long after it is gone.

This recipe uses Cremini mushrooms, also known as “Baby Bella” or “Baby Portobello”, and as its nickname implies, they are just younger Portobello mushrooms. They are more mature than white button mushrooms, harvested before turning into Portobello.

Ingredients:

For the chicken:

- ✓ 8 bone-in, skin-on chicken thighs
- ✓ Salt and pepper to taste
- ✓ 2 tablespoons of unsalted butter
- ✓ 2 tablespoons of chopped fresh parsley leaves

For the sauce:

- ✓ 1 tablespoon of unsalted butter
- ✓ 2 cloves of garlic, minced
- ✓ 8 ounces of Cremini mushrooms, sliced
- ✓ 2 tablespoons of all-purpose flour

- ✓ 1 1/2 cups of half and half (which refers to equal parts of whole milk and cream)
- ✓ 1/2 teaspoon of dried thyme
- ✓ 1/2 teaspoon of dried basil
- ✓ Pinch of crushed red pepper flakes
- ✓ Kosher salt and pepper, to taste

Directions:

Before starting, preheat your oven to 400º F (205º C). Take a baking dish and coat it with nonstick spray. Take the chicken thighs and season them thoroughly with salt and pepper, to the taste. Remember that chicken doesn't have much flavor on its own, which means it needs good seasoning for most recipes to work.

Melt the 2 tablespoons of butter in a large pan over medium-high heat. Add the chicken to it, skin-side down, and sear both sides until you see it turn golden brown, it should take around 2 to 3 minutes per side.

Place the chicken, skin-side up, inside the prepared baking dish. Place the baking dish into the oven and let it roast the chicken until it appears to be completely cooked through, reaching an internal temperature of 175 degrees Fº (80º C), this should take about 25 to 30 minutes, although every oven might be different, so keep an eye on it. Drain the excess of fat.

Now, let's get onto the sauce. To make the mushroom sauce, melt the remaining tablespoon of butter in the skillet. Add the garlic and the mushrooms, and let it cook nicely, stirring occasionally until the mushrooms appear to be tender and browned, it should take around 5 to 6 minutes.

Whisk in the flour until it is lightly browned, it shouldn't take longer than 1 minute. Gradually whisk in the half and half mixture, the thyme, basil, and crushed red pepper flakes; season the sauce with salt and pepper, to the taste. Let it cook, whisking constantly, until the cream appears to have slightly thickened. It can take up to 3 to 6 minutes.

Once everything is ready, serve chicken without letting it cool with the mushroom sauce, you can garnish it with some parsley, if you wish.

➢ **Wild Rice and Mushroom Soup**

This is the perfect recipe for those days where you simply want to enjoy delicious comfort food without feeling too heavy afterward. It is cozy and comforting for every season of the year, and it is simply full of taste and healthy ingredients. It is easy to make and a fantastic dish that will leave you full all night knowing you ate something rich and full of veggies.

It is a perfect recipe to try out on the weekends where you just want to curl up in the bed watching movies. It appears to have too many ingredients, but you can always read it over and decide if you would like to cut something out.

Ingredients:

- ✓ 2/3 cup of whole-grain & wild blend brown rice.
- ✓ 3 tablespoons of unsalted butter.
- ✓ 3 cloves of garlic, minced.
- ✓ Cremini and Shiitake mushrooms, sliced.
- ✓ 1 leek, white and light green parts thinly sliced.
- ✓ 1 carrot, peeled diced.
- ✓ 2 tablespoons of all-purpose flour.
- ✓ 1/3 cup of dry sherry.
- ✓ 6 cups of chicken broth.
- ✓ 1/2 cup of heavy whipping cream.
- ✓ 3 sprigs of thyme.
- ✓ 2 bay leaves.
- ✓ 1 bunch of kale, stems removed and leaves chopped.

- ✓ 3 tablespoons fresh parsley leaves, chopped.
- ✓ Salt and pepper to taste.

Directions:

Take a pot and fill it with water, cook the rice according to the package instructions. One it is done, set it aside. Melt the butter in a large stockpot over medium heat, add the garlic, sliced mushrooms, leek, and carrot. Continue to cook the mixture, stirring occasionally, until it all looks nice and tender. It shouldn't take longer than 5 to 6 minutes.

Whisk in the flour until it is lightly browned, it should take around 1 minute. Stir in the sherry, making sure to scrape any browned bits from the bottom of the pot. Add the chicken broth, along with the thyme and bay leaves. Bring the mixture to a boil; reduce heat to low and let it simmer, partially covered, for about 10 to 15 minutes. After that, stir in the rice until all flavors have blended, which should take an additional 5 to 10 minutes. You can also avoid cooking the rice first and simply cook it inside the chicken broth along with the rest of the ingredients to make sure it soaks up the flavors a lot better. However, it might reduce the level of broth. Stir in the kale, heavy whipping cream, and parsley until the kale has wilted, in about 2 to 3 minutes; after everything looks nice and blended, taste it and season with salt and pepper, to taste. Serve it immediately and enjoy!

➢ **Instant Pot Mushroom Risotto**

We all know how Italian cuisine *loves* to include mushrooms in almost every dish. They have pasta with mushrooms, mushroom pizza, and of course, mushroom risotto; along with many other recipes I haven't even mentioned yet.

This risotto is supposed to be the easiest risotto you will ever make. It will save you from the problem of actually making risotto, which can be a little tedious for many people because you have to check on it regularly and add in the broth gradually. Well, this is not like that. You will need to have a pressure cooker. In this recipe, a 6-qt Instant Pot® is used.

Ingredients:

- ✓ 4 tablespoons of unsalted butter, divided.
- ✓ 3 cloves of garlic, minced.
- ✓ 1 diced onion.
- ✓ 8 ounces of cremini mushrooms, thinly sliced. (You can also try with white button mushroom)
- ✓ Salt and pepper to taste.
- ✓ 2 cups of chicken broth.
- ✓ 1 cup of arborio rice.
- ✓ 1/4 teaspoon of dried thyme.
- ✓ 2 cups of baby spinach.
- ✓ 3/4 cup of frozen peas, thawed.
- ✓ 1/4 cup of freshly grated Parmesan.

Directions:

If you have a 6-qt Instant Pot®, set it to the high sauté setting. Add 2 tablespoons of the butter and melt it; add the garlic and onion, and cook the mixture, stirring it often, until the onions have become translucent, it shouldn’t take longer than 3 to 4 minutes.

Add the mushrooms and cook them nicely, stirring occasionally as well, until they appear to be tender, it should take around 3 to 4 minutes; season them with salt and pepper to the taste. Stir in the chicken broth, the rice, and thyme and mix it all. Select manual setting; adjust the pressure to high, and set the timer for 6 minutes. Once the pot has finished cooking, quick-release the pressure according to the manufacturer’s directions. Be careful.

Stir in the baby spinach and the remaining 2 tablespoons of butter until the spinach has wilted, it should take about 2 minutes. Add the peas and Parmesan until they are heated through, normally, it will take around 30 seconds to 1 minute. After everything is nicely blended and the texture of the risotto is creamy and rich, it is time to serve. Enjoy your meal!

➢ **Mushroom and Burratta Lasagnette**

This is one of those dishes that you will want to make to impress your friends and family when they come to your house. It is delicious and a great option to share with many people. This recipe makes a bit more than two people could finish in one sitting, but you won't regret it one bit.

Ingredients:

- ✓ 3 tablespoons of unsalted butter, divided.
- ✓ 3 tablespoons of olive oil, divided, plus a little more for brushing
- ✓ 1½ pounds of mixed mushrooms (Chanterelle, Cremini, and Maitake), cut into bite-size pieces.
- ✓ Salt and pepper
- ✓ 1 large shallot, finely chopped.
- ✓ ⅓ cup of dry white wine
- ✓ 1 cup of ricotta.
- ✓ ¼ cup of heavy cream.
- ✓ 6 fresh pasta sheets (about 7x5 inches) or 12 dried lasagna noodles.
- ✓ 8 ounces of burrata or fresh mozzarella, torn into large pieces.
- ✓ 1½ ounces of Parmesan cheese, finely grated.
- ✓ 6 teaspoons of marjoram leaves.
- ✓ ½ bunch of Tuscan kale, ribs and stems removed, with the leaves torn
- ✓ 1 tablespoon of white wine vinegar.

Directions:

Preheat your oven to 425° F (225º C). Take 1 tablespoon of butter and 1 tablespoon of oil in a large pan or skillet and heat it over medium-high heat. Add half of the mushrooms, season them to taste with salt and pepper, and cook, stirring occasionally, until they appear to have browned and are beginning to crisp, it should take around 8 to 10 minutes.

Transfer it to a medium bowl and set it aside. Repeat the process with 1 tablespoon of butter and one tablespoon of oil, along with the remaining mushrooms. Return all mushrooms to the skillet (keep the bowl close) and add the shallot, wine, and remaining 1 tablespoon of butter. Cook, stirring occasionally until the skillet is dry, it should take around 5 minutes. Return all mushrooms to the bowl.

Combine ricotta and cream in a small bowl, mix it thoroughly and season with salt and pepper to taste. Working in batches, cook the pasta in a large pot of boiling salted water (remember that you always need more salt than you think), stirring occasionally, until they appear just softened, it shouldn’t take longer than 30 seconds. (If you are using dried noodles, cook them until *al dente* .) Transfer noodles to a large rimmed baking sheet as you go, brushing with oil and overlapping as needed.

Spread a thin layer of ricotta mixture in a small baking dish and top with a pasta sheet (if using dried, use 2 noodles side by side). Spread a large spoonful of ricotta mixture over pasta, scatter some mushrooms over, then a few pieces of burrata. Top evenly with some Parmesan and 1 tsp. marjoram leaves. Repeat layering process (starting with noodles and ending with marjoram) 5 more times; finish with the last of the Parmesan and a grind or two of pepper.

Cover the lasagna with foil and bake it until warmed through, for about 10 to 15 minutes. Remove foil and continue baking it until it looks golden brown, for about 15 to 20 minutes. After it is done, take it out of the oven and let it cool, for at least 5 minutes. Meanwhile, toss the kale in a large bowl with vinegar and remaining oil to coat and massage leaves just to soften slightly; season with salt and pepper to taste. Serve the lasagna with kale alongside.

➢ **Pan-Fried Oyster Mushrooms**

This is a recipe for a side dish, perfect companion for many kinds of meat, chicken, rice, and more. However, it is so delicious that you will want to make it a main dish. And we certainly wouldn't judge you if you did; that's just how wonderful it is. It has a fresh flavor perfect for any meal that will leave you craving more after you finish eating. In this recipe, Yellow Oyster mushrooms are used, but it can be applied to many more species: King Oysters, Maitake, Chanterelles, and more.

Ingredients:

- ✓ 2 tablespoons of olive oil
- ✓ 12 ounces of oyster mushrooms, cut into evenly sized pieces.
- ✓ 3 garlic cloves, smashed.
- ✓ 5 sprigs of thyme.
- ✓ 2 tablespoons of grass-fed butter or ghee.
- ✓ Sea salt and black pepper to taste.

Directions:

Heat the olive oil in a large, heavy skillet over medium to high heat. Spread the mushrooms out in a single layer in the pan, making sure they are well distributed. Cook the mushrooms, without disturbing them for about 3 to 5 minutes, until they begin to brown.Stir the mushrooms and cook them for another 3 to 5 minutes, until they are browned all over and looking nice.

Add the ghee or the butter, the garlic, and thyme to the skillet and reduce the heat to low. Cook the mixture for another 5 to 6 minutes, spooning the

ghee or butter over the mushrooms until they are dark brown and slightly crispy. Remove the thyme springs and season the mushrooms with salt and pepper to taste. Enjoy!

➢ **Enoki Mushrooms with Garlic and Stallion Sauce**

This is a recipe to bring out the wonders of Enokitake mushrooms. It can be used in soups and hot pots as a sidekick, but when you blanch them and dress them in a yummy sauce, they become a delicious main dish that you will fall in love with right away!

Ingredients:

- ✓ 14 ounces of Enoki mushrooms (or 400g).
- ✓ 2 tablespoons of oil.
- ✓ 2 cloves of garlic, minced.
- ✓ 3 tablespoons of light soy sauce.
- ✓ ½ teaspoon of sugar.
- ✓ 1 scallion, finely chopped.

Directions:

Make sure to keep a gentle touch when you handle your Enoki mushrooms; they can be bruised pretty quickly. Take the mushrooms and trim away 1 inch of the root section. Use your hands to tear them into small bite-size bundles. Wash and drain them nicely.

Take a wok (ideally, you should use a wok, but you can also use anything you see fit for the recipe) and fill it with water. Bring the water to a boil, and blanch the mushrooms in two batches, cooking each batch for about 1 minute only. Drain off the water and transfer the mushrooms to your serving plate.

Now, in a small saucepan or skillet, heat the oil over medium heat. Add

the garlic and cook for about 10 to 20 seconds (just to get the flavor out, no need to brown it). Add the soy sauce, sugar, and scallions.

Bring the mixture to a boil and turn off the heat. Make sure that you don’t overcook the garlic and scallions – we are looking for that fresh, sweet taste. Pour the sauce over the Enoki mushrooms and enjoy!

➢ **Oyster Mushrooms, Garlic, and Green Onions Sauté**

This recipe is simply amazing. It is vegan, healthy, and incredibly easy to make. It brings out the absolute best of Oyster mushrooms, and you can adapt it and use it with many different ingredients to add to the flavor. It is very filling, and it will certainly blow the minds of your friends and family. Besides, as its name implies, it doesn't use many ingredients. You probably have all of these ingredients already lying around your kitchen. Also, these Oyster mushrooms are a great side-dish for many different companions, so feel free to experiment with it!

Ingredients:

- ✓ 2 tablespoons of olive oil.
- ✓ 1 pound of Oyster mushrooms.
- ✓ 4 garlic cloves, minced.
- ✓ 4 green onions, finely chopped.
- ✓ Salt and pepper to taste.

Directions:

Take a skillet with the olive oil and place it over medium heat. Let it heat until it is hot, but not smoking. Immediately after it is hot enough, add the mushrooms and garlic, and sauté for 2 to 3 minutes approximately, regularly stirring with a spatula.

After 2 or 3 minutes of sautéing, reduce the heat a little and sprinkle the mushrooms salt to the taste, stir to mix it all nicely, and cover with a lid to let the mushrooms continue to cook for another 5 to 7 minutes.

Occasionally stir it, until they soften and begin to release their delicious juices. Having the lid on will allow mushrooms to generate some moisture and not get burned.

Mushrooms should be cooked for a total of 7 to 10 minutes, but keep an eye on them. If you consider that there is too much liquid in the pan, cook for an additional couple of minutes with the lid off, on medium heat, to allow the extra liquid to evaporate.

When the mushrooms are completely cooked, add half of the chopped green onions to the mushrooms, mix it all nicely, and season the mixture with salt and pepper to taste. When serving, top each place with the remaining onions. Enjoy!

➢ **Stuffed Portobello Mushrooms**

This recipe is amazing because it takes advantage of the great size and flavor of Portobello mushrooms. It is so simple to make and yet so incredibly delicious. The cream cheese and bacon make a great combo, while the tomatoes add a great sense of freshness. It is a great dish to make to change things up in the kitchen in a very fun, delicious way, and blow the minds of anyone who tries it.

Ingredients:

- ✓ Cooking spray
- ✓ 8 Portobello mushrooms, washed, stems and gills removed.
- ✓ 2 tablespoons of extra-virgin olive oil.
- ✓ 1 block of cream cheese, softened.(8-oz.)
- ✓ 1 package of frozen spinach defrosted and squeezed dry. (10-oz.
- ✓ 1 cup of shredded mozzarella
- ✓ 6 strips of bacon cooked and roughly chopped.
- ✓ 1/2 cup of cherry tomatoes, quartered.
- ✓ 2 cloves of garlic, minced.
- ✓ 1 teaspoon of dried oregano.
- ✓ Kosher salt and freshly ground black pepper to taste.
- ✓ Pinch crushed red pepper flakes.
- ✓ 1/2 cup of panko breadcrumbs.
- ✓ 1/4 cupof freshly grated Parmesan.
- ✓ 4 tablespoon of melted butter.
- ✓ Freshly chopped parsley, for serving.

Directions:

Preheat your oven to 400° F (205º C). Grease a large baking sheet with the cooking spray, and place the mushrooms, stem side down, on the pan. Brush them with oil and sprinkle them with salt. Bake the mushrooms for 10 minutes approximately, or until they begin to soften.

If they release too much water, soak it with paper towels. In a large bowl, add the cream cheese, spinach, the mozzarella, bacon, the tomatoes, garlic, and oregano. Season the mixture with salt and pepper to taste, and add a pinch of red pepper flakes. Mix it well until it is nicely blended. Set the bowl aside.

In another bowl, medium, combine the panko, parmesan cheese, and the melted butter. Flip the mushroom caps over, so they are set with the stem up, and stuff them with the cream cheese mixture. Top them with the panko mixture and place it in the oven. Let them bake until the cheese melts and the tops are golden; it shouldn’t take longer than 15 minutes.

You can garnish them with parsley before serving. Enjoy your mushrooms!

➢ **Angel Hair Pasta Primavera**

Everybody loves pasta. This is a dish that is easy, fast, and delicious to make. It suits all kinds of tastes, and it is a go-to recipe when you want something quick but good. It uses the wonderful “Baby Bella” mushrooms that are filled with a wonderful taste. You can experiment with it as much as you want and see how you can change things up!

Ingredients:

- ✓ 12 oz. of angel hair (or your favorite pasta).
- ✓ 2 cup of broccoli florets
- ✓ 1 pt. of cherry tomatoes (yellow and red)
- ✓ 1 package of Baby Bella mushrooms (8 oz. approx.)
- ✓ 1 15-oz. can of artichoke hearts, drained and chopped.
- ✓ 2 teaspoons of garlic powder.
- ✓ Kosher saltand freshly ground black pepper to taste.
- ✓ 3/4 cup of grated Parmesan, plus more for garnish.
- ✓ Sliced fresh basil, for serving.

Directions:

Preheat your oven to 400° (205º C). In a large pot, bring water to a boil and add salt once it is boiling (you always need more than you think!). Cook the pasta until it is*al dente* . Drain the pasta, and reserve 1 cup of pasta water for later. Return the pasta to the pot.

On a large baking sheet, toss the broccoli, tomatoes, the mushrooms, and the artichoke hearts with oil and season the mixture with garlic powder,

salt, and pepper to taste. Roast them until they seem tender and caramelized. It shouldn’t take longer than 15 to 20 minutes. Stir them once to make sure all sides are cooked.

Once they are done, add the roasted vegetables to the pot of pasta, along with parmesan cheese and half the cup of the pasta water: over low heat, stir vigorously to create a sauce, giving the pasta some moisture. Add more pasta water until you reach the desired consistency and texture. Garnish the plates with Parmesan and basil once they are served. Enjoy!

How to Start a Homegrown Mushroom Business

We have reached the part of this book where you take what you know and make the very best out of it, to improve more than one aspect of your life at a time. You already know all about the benefits of growing mushrooms, you know how to do it, what the possible problems you may encounter are and how to deal with them, and you know how to include them in your everyday cooking. Now it is time to learn how you can make a profit out of them. How amazing does that sound?

There are a large number of people out there that have ventured on the idea of running a mushroom business from the comfort of their home, and they speak of the numerous benefits it has brought to their lives. Some of them have even turned it into a full-time job.

Once you know how to grow your mushrooms, you will be able to take advantage of your knowledge to start making a good profit. However, this doesn't happen without a bit of effort. So, how can you start a homegrown mushroom business? Let's dive in.

Is It Worth It?

This is a question that you need to ask yourself before starting any business: is it worth it? Why should I go through all of this trouble? Will I see a profit? There are thousands of business ideas out there that you could start, so why mushrooms? Instead of just telling you that it *is* worth it and moving on, I am going to explain to you *why* .

1. Affordable startup costs

Every business needs an initial investment; that goes without saying. So, no, you cannot grow your mushrooms and start a business out of them without spending a little bit of money first, but the good news is that you don't have to spend thousands of dollars on it. In fact, a couple of hundred should help you kick start your mushroom business. This is great because a business that demands a big initial investment wouldn't be much of a

choice for a beginner.

We already discussed the equipment you will need to start growing your herbs, and once you add up the costs all of it represents, you will be able to see how growing mushrooms is not as expensive as you may think. You will need to spend on mushroom spawn, the substrate, the containers, and additional equipment, but none of this represents a major expense. We mentioned that you will need a vessel, like, let's say, **mushroom grow bags** . You can obtain them through Amazon, and you can buy a pack of 50 bags for around $32. There are different brands and packs that you can buy, but this is an average cost. The cost of **mushroom spawn** will vary depending on the type of spawn you want to acquire and the species of mushroom. To give you a general idea, you can find on Amazon a bag of 1lb of King Oyster mushroom spawn for $30. There are always ways to reduce the cost of spawn by propagating it in different kinds of grain or inoculating your own using mushroom culture.

You can buy **mushroom substrate** already sterilized, and the price will vary depending on the amount that you buy and the kind of substrate you acquire. If you already have some substrate available in your house, like straw, coffee grounds, logs, or sawdust; or if you have a way in which you can obtain them for no cost, then that would reduce even further your expenses.

You can also obtain a **pressure cooker** to make sure you can sterilize your materials correctly. Their cost varies depending on the brand and size, but you can get one for anything around $80 to $200+. The rest of the equipment, like gloves, tools, spray bottles, and more, aren't exactly expensive, and you can use whatever you have around your house right now.

Heating mats are also a good addition to your business if you are planning on growing your mushrooms all year, through different seasons. We already discussed the benefits they can bring to your harvest and how to incorporate them into your garden. You will also need to consider **packaging;** this is where you take a normal product and you turn it into something unique, using stickers or personalized packages.

The truth is that the amount of money that you spend will be up to you, in the end. You can also go all-in and buy big equipment like a laminar flow hood to keep the workspace sterilized or growing racks in which you will place dozens of growing bags. You can take an unused shed and invest everything needed to turn it into the perfect growing room, including LED

lights to keep your mushrooms illuminated and some equipment to keep a good stream of air. All of this will elevate your initial investment, but in the end, it will be worth it.

Mushrooms are sold by the pound and can be quite profitable. Shiitake and Oyster mushrooms can be sold for around $10 to $12 per pound. Considering the costs that all of these items add up, it is safe to say that growing mushrooms is not an expensive adventure. Calculating your costs will help you later on to price your precious little mushrooms, which is a crucial part of starting a business.

Besides, the costs will be reduced once you move forward with the business. I mean, for example, the pressure cooker and lighting, or the racks, are initial investments that can be recovered quickly and they are not expenses that you will be making every month – only when you start scaling your business.

2. Gourmet mushrooms are high-valued crops.

As it has been mentioned before, mushrooms can be sold for a good price. If you have bought mushrooms around your area, you know they can be quite expensive. Keeping your drawer stocked with different types of mushrooms can mean a big upgrade to your wallet. By growing your own, not only you will be saving a ton of money, but you will also have the opportunity to value your mushrooms fairly.

Mushrooms are quite popular, but there's still a long way to go before every kind can be easily found in all markets and stores. The way we see it, there is an opening in the market for anyone who dares to take it (hopefully, that will be you). This allows you to gain good profit from every pound or kg of mushrooms you produce; assuring you will regain your investment in a very short time, and start producing a nice amount of income.

3. You can grow mushrooms year-round

This might depend on the growing method you choose, but if you go all into building your mushroom controlled growing environment somewhere inside your house, you will soon realize how amazing it is that you can produce your little mushrooms through every season of the year. It is a

great advantage over other competitors since it will make sure that your clients will have access to any kind of mushroom even when outside everything stopped growing.

Starting a Homegrown Mushroom Business

One thing is for sure, and it is that knowing how to grow mushrooms is not the same as having a business based on them. Just because you have a couple of growing bags doesn't mean you are ready to start selling them.

So, how do you start a homegrown mushrooms business? Or even better, how do you know you are ready to start one? Well, this last question is the one you should answer first. Before launching a product to a market or reaching out to customers, you need to make sure you can handle it. How can you do this? Let's dive in.

1. Trial and error

This is crucial, and we have mentioned this throughout the entire book. Don't be afraid to fail! That's the only way you can truly learn how to grow your mushrooms. Before you even begin thinking about selling mushrooms, you need to make sure you know how to grow them. And I'm speaking of high-quality mushrooms. I hate to break it to you, but your first mushroom bag most likely won't be your best. You know what they say, the first pancake never comes out right. Well, similarly, the very first mushroom you plant might turn out looking weak, contaminated, or may not grow at all. This is not reason enough to quit and give everything up – you need to be patient. Take a while to get to know your mushrooms.

This is the reason why it is so important to keep a journal of your progress. Grow a few different species and write down everything about them: how much water they should receive, how many days have passed since you inoculated the substrate, colonization rate, and more. No detail is too small.

Play with the process to evaluate your strengths and weaknesses. Keep track of any possible problems you may encounter, and use the information to improve your herbs. Remember that they are supposed to be a product for your clients, so they need to be as good as possible.

2. Start simple

There's something you need to keep in mind before starting a business: *you cannot be an expert right at the beginning.* You need to start somewhere so you can begin to learn and grow, and the best advice that I can give you is to take it slow so you can let yourself enjoy the process.

Most businesses start with something small, using one single product as the face of their company, and they start growing from there, introducing new products as they go along. We recommend you do the same when you are starting in this business. How can you do this? Well, to keep your business clean and easier to manage, you can start with maybe two or three popular varieties of mushrooms only and see how it goes.

Maybe you can start with something easy, like Oyster, and see how it goes from there. Later, you can move on to other varieties of Oyster until you have it under control.

It will be easier to keep track of your product, stash, and clientele that way. Once you have created a good relationship with your customers, you can begin to inquire about what other different kinds of mushrooms they would like to purchase, giving you a precise starting point. Besides, that way you will know that once the new mushroom is ready to harvest, you will have someone to sell it to. This is crucial when it comes to mushrooms because their shelf-life isn't very extensive.

3. Keep learning

This is crucial, and it should go without saying because this is something that you will need to do every single day with a homegrown mushrooms business. To run a successful business, you can't just stay with what you already know and hope that is enough. You need to keep digging, keep finding new tips, recommendations, and facts from people that have been in your shoes. This book is a step in the right direction, but you still have a long way to go.

We live in a time where gathering information has never been simpler. It is as easy as typing a sentence and press enter, and you will have millions of websites talking about what you need to know. Browse different articles, watch YouTube channels, read what people are saying and doing, what works best for them, and evaluate how it would work for you. No matter what you do or where you look, just don't stop learning about other

people’s experiences and the whole growing process. Keep searching for information and use it to your advantage.

Find out everything you can about your mushrooms, but don’t stop there. Look for information about running a business, the different tips you can apply to maximize your success, how other people innovate. It will only take you a couple of Google searches and some reading, but you will be very grateful for doing it in the end. The more you know, the better prepared you will be for anything life throws your way.

4. Price your mushrooms

Before you even start reaching out to customers, you must know exactly how much you are going to ask for your products. This will help you get an idea of how much profit you can make with each container, and what is the smallest price you can give to your customers, in case the situation asks for it.

The first thing you will need to do is to find out about the normal price for mushrooms in your area. This includes going through farmers' markets, online stores, and grocery stores. The price may vary from place to place, so the best thing is to choose the best type of mushrooms to use that have both good market value and demand from customers. Then you will need to consider how many containers you can grow in your designated area to help you reduce your costs. Let’s say that you can only hold 15 growing bags. You will need to estimate the cost of growing those bags and divide it between the number of mushrooms you are growing.

There are two types of costs in this case: fixed and variable. These include a substrate, water, electricity, spawn, containers, packaging, and a few more factors that we will cover in a minute. As we mentioned earlier, your containers, like growing bags, won’t be too expensive if they are bought in bulks. Your packages can cost you anything from $0.2 to $0.5 (this refers to generic packages; it doesn’t include stickers or anything like it, so you will need to add the cost of that to each growing bag, bottle, or container). Water and electricity are variable costs.

You will need to use electricity to run your heating mats, pressure cooker, dehumidifier (if it applies), and more, depending on the kind of equipment

you get. There are also more costs to consider, including insurance, shipping, labor cost, taxes, etc. These variables are different for each person and frankly difficult to estimate an accurate average.

This might sound like a lot of costs to cover, but the truth is that your little mushrooms will be able to cover them, you just need to be accurate when calculating the prices. It is normal to lose some money at the beginning of a business, but try to keep your head out of the water and don't lose hope. You got this.

5. Consider packaging

The packaging of your mushrooms is crucial. Remember that mushrooms don't have a very prolonged shelf life, so you will need to determine how you are going to tackle this. We mentioned the different ways in which you can store your mushrooms. You can sell your mushrooms fresh, dried, or even in pickled form by preserving them in vinegar and oil.

Mushrooms can be found fresh in the store packaged in Styrofoam trays cover with plastic films with holes to let the mushrooms breathe. After you harvest your mushrooms, you will need to refrigerate them right away. You can package them and put them in the refrigerator until they are ready to be sold.

You will need to hurry because they won't last very long. You can also place them in plastic bags with holes and place them in the refrigerator as well. This might take a little trial and error.

To sell them to restaurants and chefs, you can package them in cardboard boxes and deliver them in big quantities. You can settle this with your customers directly.

6. Study your market

Up to this point, you know a lot about mushrooms, but we need to ask you: do you even know who you are going to sell your mushrooms to? Have you stopped to consider what the right customer for you would be? If you haven't, stop reading right now, and try to imagine who your ideal customer would be. Why would they buy your mushrooms? What are you offering that they cannot get somewhere else? Better prices? Original packages? Exclusive deals?

Researching your market is crucial for any kind of business in the world. Whether you are selling pants or computers, you need to know what kind of person would be willing to spend money on you. The answer to those questions will be the foundation on which you will build your business. This is the section where you construct your brand and the values behind them, all meant to help your marketing strategy.

You will need to have a solid business plan to run a successful business. Taking nice pictures of your mushrooms and posting them on your social media and hoping they will sell is not going to be enough marketing strategy for the world we live in right now. You need to have a presence, and an actual message. Your customers need to understand clearly what you are offering them, and you need to make sure to always deliver.

However, you don't need to go over this alone. We are here to help you understand the kind of questions you should be asking yourself. That is why we are going to go over the different types of customers that you may aim for with a mushroom business.

Whom can you sell your mushrooms to?

- **Farmers Market**

This is a pretty quick way to start selling your fresh mushrooms. You can always try to sell your mushrooms by setting up your farmer's market and sell them directly to the public. Besides, it is a nice way to get some exposure inside your community.

You can show your logo or business name, spread your social media accounts or contact information, and spread the word about the different ways to purchase your product directly from you.

You can give out business cards and use the opportunity to tell people the different ways your business functions, like home delivery, for example.

If there is no room in the market for a new place, you can try asking someone if they could lend you some of their space, or sell the mushrooms for you.

➢ Grocery stores

Grocery stores are also a good option when it comes to selling mushrooms. They already have a good clientele going in every day, so it can help you get some exposure for your business.

You can sell them your mushrooms by making sure you provide them with great samples in a good, attractive packaging that will help them test the market with your product.

Make yourself a good competitor by offering the best price possible, and take note of the varieties of mushroom they don't have in the display, as well as the ones they do.

That means you will be taking note of the spots in the market that you can fill with new species of mushrooms. Maybe they already sell white button mushrooms, but not Shiitake, or Oyster. Be observant.

➢ Directly to the public by building your brand

It has never been easier to start a business. Well, I mean, nothing comes easy, but if you work hard enough, you will see how it can all pay off just nicely. You can always try to build your own clientele from scratch and sell your mushrooms directly to your customers using online platforms to help you.

This might not be the easiest thing to do since you will need to build your reputation from the ground. However, it can also be one of the most rewarding ways of selling – it leaves the door open for incredible growth. Besides, you can help yourself out by getting some exposure for your brand in the farmer's market and grocery stores. Don't be shy. You can try different channels to sell your mushrooms and it might turn out to be the most beneficial course of action-

So how do you do this? Well, to reach potential customers, you will need every means you can get. You can start with **social media.**

Thousands of small businesses and startups nowadays turn to social media to help them build an audience and a channel in which they can communicate with returning customers and find new ones. Of course, this is not something easy to do, but it sure is worth it. You should keep a good social media even if you plan on selling to restaurants and grocery stores.

There are a ton of courses and tools out there that you can learn and use them to your advantage. Social media offers an endless stream of possibilities nowadays, so keep it in mind. You can find plenty of

information online about how to build a business using social media and online platforms. The reach can be incredible.

Setting up an Instagram account, a website, a Facebook account, or all of them is one of the best ways to get exposure for your business. By creating great content, engaging with your audience, and making sure that you are reaching an audience that could be potential customers near you, sooner or later you will find your direct messages full of possible sales. You can be running your own business from home and delivering your product to people's houses.

Remember when we talked about packaging? The packaging is always important, but when you are selling your product to direct customers, you will want to blow their minds. You can have special labels printed for your packages, you can personalize each package for when it reaches your customers, or you could create your own package instead of using regular trays.

You can even include free miniature recipe books that you give to your customers depending on the type of mushroom they bought. It is all up to you and how you choose to make your business yours and impress your customers. This is the part where your hard work can merge with your creativity to help you build the business of your dreams.

Packaging and social media will depend on the type of product you sell. Maybe you can do something out of the box, and sell mushroom spreads (this will remove the problem of storing them fresh!) or sell them solely stored in olive oil with garlic.

You can put together a special package in which you combine different mushrooms that go great together, or you can invest in a food dehydrator and sell your dried mushrooms, or in powder for creams and seasoning.

One crucial aspect of running your business is having your own website! Having a website nowadays is like a credibility card to your customers. It sends them the message that you take your business seriously and you are completely legit. Some people believe that if a business doesn't have a website or social media account, they don't exist. Don't fall behind; start taking advantage of technology to help you grow your business!

This will also help with the transparency of your products and how to contact you. You can display your different products and have them delivered to your customers' houses. Multiple platforms encourage the

selling of homemade products like Etsy or Shopify, which are a great place to start.

Once you start selling and your business begins growing, word of mouth will begin to spread positively (hopefully!). This is one of the greatest allies a business can have in a small community.

The miracles a good testimony can do go a long way. Your customers have friends and families that will ask about their new ingredients and how they got them.

By making sure they spread a positive impression of you and your product, you are reaching potential customers that are ten times more likely to purchase from you since the recommendation comes from someone they know. This is the best way to grow a business!

7. Get your business up and running!

This is the best part of it all: start selling! The most important thing is that you take your time, and don’t beat yourself up if something takes longer than expected or if you encounter a bunch of obstacles in your way. There are no businesses out there that were created overnight. Everything that takes effort also takes time, so make sure you are putting both of them in the mixture. Start by growing the perfect mushrooms, and once you have them perfected, you can start thinking about writing a business plan and setting up your business.

Once you start with your business, make sure to keep your hopes high and your feet in the ground, start reaching out to customers, and improving your product with every chance that you get.

Also, keep escalating your business and adding new things to make it better. But most importantly, be patient with yourself. This is a process that takes energy and knowledge to be perfect, and even sometimes the biggest experts have a hard time with it. Be kind to yourself, you are doing the best that you can!

Final Thoughts

We have reached the end of this wonderful book, and there isn't much left to say that we haven't already. By now, we hope that you have enough knowledge and tools to help you start your own homegrown mushroom business and that you feel excited to start this journey. However, not everything in life has to be about money and businesses.

This book was written not only for those who were looking for uncommon ways to make a profit but also for those who simply wanted to take on a new hobby and start turning their lives around with something different. Gardening will bring you many wonderful things to your life – what we already discussed and much more. Making it a part of your days will surely pay off pretty quickly, and I am not talking about money.

At this point, you have been bombarded with information regarding everything you need to know about cultivating mushrooms and how they can help you achieve a healthier life, as well as a nice stream of income to improve your finances. It is a lot of information, but it is all crucial to embark on this journey.

You probably felt quite overwhelmed a few times while reading this book, but please, don't feel discouraged – I felt the same way more times than I can count while learning about mushrooms for so long. It seems like there is a lot to learn, but believe me when I say, the best mindset you can adapt is "practice makes perfect."

You can read as much as you wish about mushrooms, but the only way to truly know this world is by giving it a try – over and over again. It is a process filled with trial and error, but it is also full of victories, interesting shortcuts, and delicious outcomes.

And this not only applies to mushrooms but also about many different aspects of life. You can't become an expert on something only by reading about it or knowing the theory.

You need to get yourself out there, get your hands dirty (both literally and figuratively), and just try over and over again until you master it. Don't beat yourself up if you don't get solid results the first time – none of us do! It is completely normal to make mistakes, to fail and to try again before succeeding.

You can get better, but it is totally up to you. Take a deep breath and make sure that you are enjoying the process.

Before you close this book, I wanted to ask a little thing from you. If you enjoyed reading about mushrooms, or if you absolutely hated every second of the experience, I would love to know either way. I want to read your thoughts!

You can go to **Amazon** a leave a sincere review about my book and your time with it. If you are going to break my heart, please be gentle about it, I'm being very vulnerable out here.

Without much left to say, this is where we part ways, my friend. Once again, thank you for reading. Happy growing!

About the Author

Aaron Martinez is an aspiring writer who happens to have a Bachelor's degree in International Business. He speaks three languages, including English, Italian, and Spanish, and is in the process of learning French. He lives near the country where he spends a lot of time playing with his dogs, experimenting in the kitchen, and coming up with new ways to reinvent himself.

He has a big, loving family and an incredible love for nature, which keeps growing every day along with the beautiful plants he has planted in his own garden. His examinations in science helped him improve in the specialty of cultivating and botanic.

He is growing mushrooms since 2009. During that time, he has focused on finding the easiest low-tech ways to cultivate mushrooms. Mushroom growing is often seen as a complex process, but in my experience, anyone can learn to do it pretty easily if they choose the right methods.

He has headed out broadly attempting to catch the insider facts of development on each landmass. Driven by this enthusiasm, he chose to advise his encounters to improve the information on the individuals who share this energy with him.

He has gathered a ton of knowledge throughout the years about nature, and he simply couldn't keep it to himself anymore; so one day, he realized that nature could be the bridge between his dreams of becoming a writer and teaching more people about the wonders of growing different types of plants, all from the comfort of their own homes.

He dreamed of publishing a book for a long time, but now he has managed to accomplish even more than that. He can proudly say that *Growing Mushrooms: The Complete Grower's Guide to Becoming a Mushroom Expert and Starting Cultivation at Home* is the third book of his gardening series, following his first book called *Growing Microgreens: How to Grow Microgreens at Home for Health or Profit,* and his second gardening book, called *Growing Herbs: How to Grow Herbs At Home for Health or Profit.* Both of which you can check out online.

He can't actually believe he already has three books finished on his series, and he will continue to work hard to make sure they don't stop there. Stay tuned for his next deliveries, because they certainly won't disappoint.