

MAKERS MANUAL #13

Valentina Dipietro



INTRODUCTION

This manual offers direction on the most effective method to make bowls and other domestic objects from wood chippings and mushroom mycelium. Mycelium is the “root” of mushrooms and it behaves like a natural glue binding wood chippings together. Subsequently, this mixture can be moulded into 3D shapes and later cured, the whole process taking about four weeks. These grown materials are naturally insulating, water repellent, sound-absorbing and completely compostable! Make sure to break them down into small pieces and use them as an agricultural fertiliser at the end of their life span. Experiment with making your own mycelium products with 3D printed, vacuum formed, paper or found moulds!

If you want to make a mycelium bowl, make sure you find two bowls, one larger than the other. Mycelium can then be pressed between these two bowls. Make sure the overall thickness is around 2.5cm or more. If you have access to a 3D printer you can design one with a texture you like. You can also use paper and cardboard moulds and other found objects. The only requirement is that the mould is non porous; paper or wooden moulds need to be covered in cling film otherwise the fungus will adhere to the surface. Flexible moulds are also beneficial. In order to avoid contaminating your mixture your clothes should be freshly laundered or you should be wearing a clean lab coat. During the inoculation of the substrate you should be wearing a face mask and gloves and you should sanitise the work surface and your tools with isopropyl alcohol.

PART 1

STEP 1

Pasteurise your wood chips in a pressure cooker or a pot with plenty of water for 30 minutes for a pressure cooker or at least 1 hour for a normal pot.



STEP 2

Wearing gloves, strain the wood chips making sure that they don't come in contact with any unsterilised surfaces. Then put them in a filter bag or a sterilised mason jar.



STEP 3

Wait for the wood chips to cool down and weigh them.

STEP 4

Add the mushroom spawn to the wood chips, the ratio should be at least 25% of the wood's weight.



STEP 6

After the substrate is mixed it can be put back in the bag or jar and then sealed with tape or, in the case of the jar, covered and sealed with coffee filter paper so that there is air exchange.

LIST OF THINGS

- 200 g waste oak or beech chips
- 50 g Reishi sawdust or grain spawn
- 2 spoonfuls of flour
- Isopropyl alcohol
- Mushroom spawn grow bags, mason jars with coffee filters or, alternatively, a plastic bag with small holes in it



TOOLS

- Pressure Cooker or Normal Cooker
- Hob
- Gloves
- Spoon
- Face mask
- Mixing bowl
- Strainer
- Scales
- Scissors
- Tape
- Plastic/Glass containers
- Own 3D printed/vacuum formed/paper mould/found object
- Clean Clothes/Lab Coat

STEP 7

Incubate at room temperature of 23/25° in a cupboard, under your bed or in a box with holes on the top making sure it's in complete darkness.

Now you have to wait for at least 5/7 days for the mycelium to colonise your substrate, it will look completely white when finished. Pay attention to moulds (orange or green) as it could mean contamination and you would need to throw away the whole batch.



PART 2

STEP 1

In a sterilised environment and with gloves and mask on, take the mycelium out of the bag/jar and pour it into the mixing bowl.

STEP 2

Start breaking up the material with your hands so that the white disappears.

STEP 3

Add 1 spoonful of flour and mix thoroughly.



BIO OF THE DESIGNER

Valentina Dipietro is a Biodesigner, Researcher and graduate of the Royal College of Art. Adopting an experimental approach, Valentina works at the intersection of biology and design to explore innovative and disruptive sustainable designs for products, interiors and architecture. She is the founder of Mykor, a biotechnology and design company which has at its core digital design and bio-fabrication inspired by nature and she is also a visiting lecturer for various universities worldwide.

FURTHER READING

- Krown Design (<https://www.krown-design.com/wpcontent/uploads/2018/06/Krow-It-Yourself-Instruction-Manual.pdf>)
- Ecovative (https://www.youtube.com/watch?time_continue=98&v=26iLV-2fazH8)
- Mycoworks (<https://www.youtube.com/watch?v=c6nurN-Hii8>)
- Mykor (www.mykor.co.uk)
- The Mushroom Cultivator by Paul Stamets
- Radical Matter by Kate Franklin and Caroline Till
- Why Materials Matter by Seetal Solanki

Makers Manual is a collaborative project between exciting makers and STORE STORE. Participation is free and no design background is necessary. You can share your creations using #makersmanual. We will pick our favourite submissions and publish the results in a limited printed edition of all of the manuals. Everyone who makes it into the book will receive a free copy.

This project is supported by Coal Drops Yard.

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STEP 4

Take the material and press it into your mould making sure that it's not too pressed and there are some air gaps.

STEP 5

Put it back to incubate covering it with cling film with some holes for air or in another sealed filter bag.



After 5/7 days your material will be fully grown and it can be removed from the mould and put to dry on a drying rack. If you need to speed up the drying process, bake at 100° for 45 minutes. Check from time to time to make sure the temperature is not too high otherwise it will become brown. At the end of this process you will have a perfectly solid mycelium product with endless uses!



