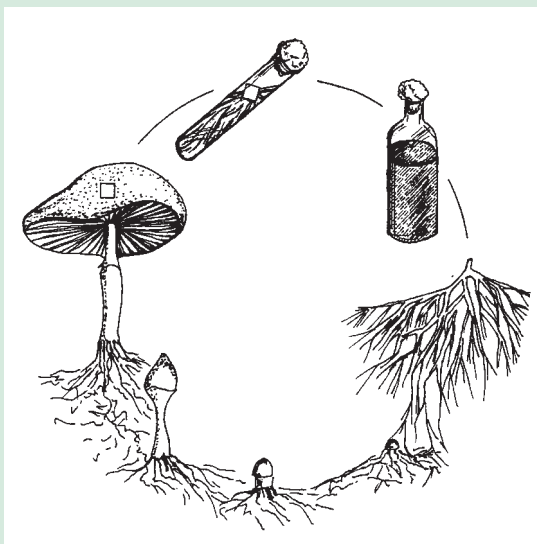
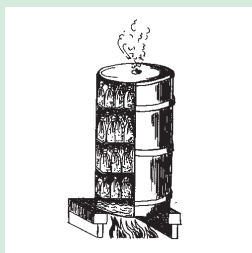
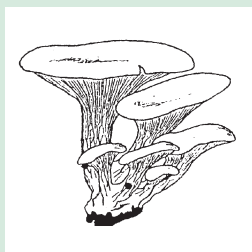


Small-scale mushroom cultivation

oyster, shiitake and wood ear mushrooms



Agrodok 40

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Peter Oei
with contributions by Bram van Nieuwenhuijzen

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First edition: 2005

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Translation: Ninette de Zylva

Printed by: Digigrafi, Wageningen, The Netherlands

ISBN Agromisa: 90-8573-038-4

ISBN CTA: 92-9081-303-2

Foreword

Mushroom cultivation fits in very well with sustainable farming and has several advantages:

- It uses agricultural waste products
- A high production per surface area can be obtained
- After picking, the spent substrate is still a good soil conditioner

This Agrodok contains detailed information on how to grow three kinds of mushrooms: oyster, shiitake and wood ear mushrooms. These mushrooms are rather easy to grow on a small scale. Cultivation of the common white button mushroom and of the rice straw mushroom is very different and will therefore be dealt with in another Agrodok.

Much of the information presented here is from my book “Mushroom cultivation and appropriate technologies for commercial mushroom growers”. By concentrating on three mushroom species only and on relatively simple technologies, I hope readers can obtain a sustainable profit from mushroom growing.

Bram van Nieuwenhuijzen was the director of the Mushroom Growers’ Training Centre (nowadays known as C Point) at Horst, The Netherlands, for a number of years. He is currently involved in mushroom cultivation projects in several countries as an adviser through PUM Netherlands Senior Experts in The Hague.

Peter Oei

Chairman ECO Consult Foundation and Visiting Professor Fujian Agricultural University

Contents

1	Introduction	6
2	Biology of mushrooms	8
2.1	Fungi	8
2.2	Fungus ecology	8
2.3	Life cycle of fungi	9
2.4	Temperature ranges of cultivated mushrooms	12
3	Mushroom farms	14
3.1	Farm layout	14
3.2	Farm hygiene	17
4	Spawn production	18
4.1	The starter culture	20
4.2	The sterilisation process	20
4.3	Clean environments	22
4.4	Cultures	24
4.5	Preparation of media	27
4.6	Preparation of slants	28
4.7	Mother spawn	32
4.8	Preparation of the final spawn	34
5	Growing oyster mushrooms on pasteurised or 'sterilised' substrates	37
5.1	Preparation of the substrate	37
5.2	Heat treatments	40
5.3	Spawning pasteurized substrate	44
5.4	Spawning sterilised bags	44
5.5	Spawn run	47
5.6	Fruiting/cropping	48
5.7	Harvesting	50
5.8	Case description: Ahmedabad, India	51
5.9	Case description: Bogor, Indonesia	54

5.10	Juncao Technology turns grass into mushrooms	56
6	Shiitake cultivation on plastic bags	58
6.1	Substrate preparation	58
6.2	Filling and heat treatment	59
6.3	Spawning	59
6.4	Spawn run and mycelial development	60
6.5	Fruiting	61
6.6	Harvesting	63
6.7	Pests and diseases	63
7	Wood ear mushrooms on 'sterilised' substrate	65
7.1	Substrate preparation	65
7.2	Heat treatment	65
7.3	Spawning and spawn run	65
7.4	Fruiting	66
7.5	Case description: the Philippines	66
8	Post harvest handling	69
8.1	Fresh Market	70
8.2	Drying	71
	Appendix 1: Formulas	76
	Appendix 2: Substrate preparation	77
	Further reading	78
	Useful addresses	81
	Glossary	83

1 Introduction

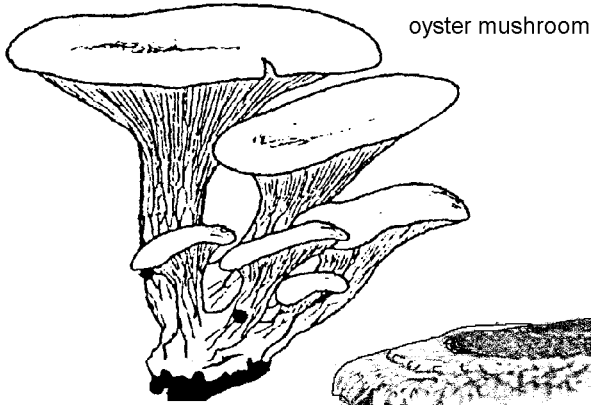
Do you want to grow mushrooms? There are plenty of reasons to do so. Mushrooms are a good cash crop; they are rather easy to grow and are brimming with protein, B vitamins and minerals. They even have medicinal properties. Time between spawning and harvesting can be as short as three weeks. Furthermore, after the cultivation, you can still use the substrate as a good soil conditioner.

This Agrodok gives you detailed information on the cultivation of oyster, shiitake and wood ear mushrooms. Although many other types of mushrooms can be grown, we have chosen the ones that can easily be cultivated in developing countries using appropriate technology.

When choosing your method to grow mushrooms, you have to find an answer to the following questions:

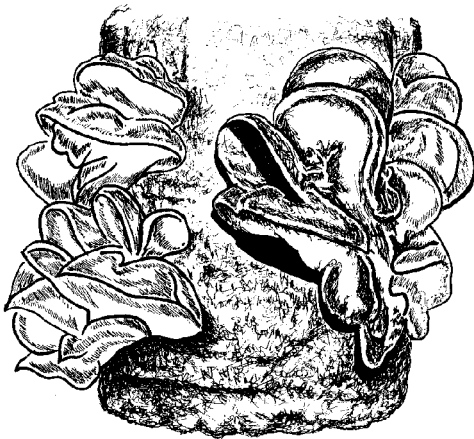
- 1 Which of the mushrooms do you want to grow? Check the market and the temperature ranges for fruiting (see paragraph 2.4).
- 2 Can you obtain mushroom spawn (the “seed”) of the species you want to grow? Chapter 4 shows you how to produce your own spawn. If you cannot obtain or produce spawn it will not be possible to grow mushrooms.
- 3 What kind of substrate would you need to be able to grow the desired mushrooms? See Chapter 5.
- 4 How should you treat the substrate? This affects the investments you have to make. Details can be found in the chapters on the specific mushroom species.

To understand mushroom growing and the properties of mushrooms, some biological knowledge of the crop is necessary. So, we will start with the biology of mushrooms.



oyster mushroom

shiitake



wood ear mushroom

Figure 1: The three mushroom species dealt with in this Agrodok