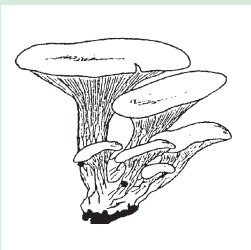
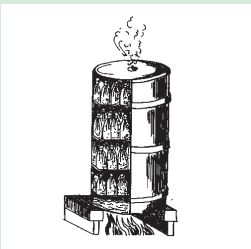
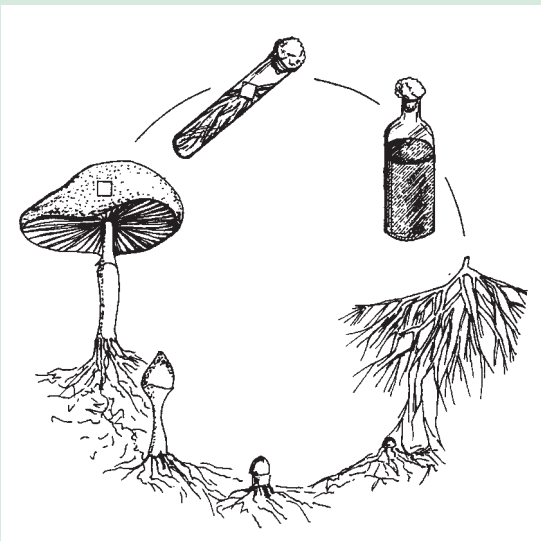
Agrodok-series No. 40

Small-scale mushroom cultivation

oyster, shiitake and wood ear mushrooms







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Agrodok 40 - Small-scale mushroom cultivation: oyster, shiitake and wood ear mushrooms

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Small-scale mushroom cultivation

oyster, shiitake and wood ear mushrooms

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with contributions by Bram van Nieuwenhuijzen

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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

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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.

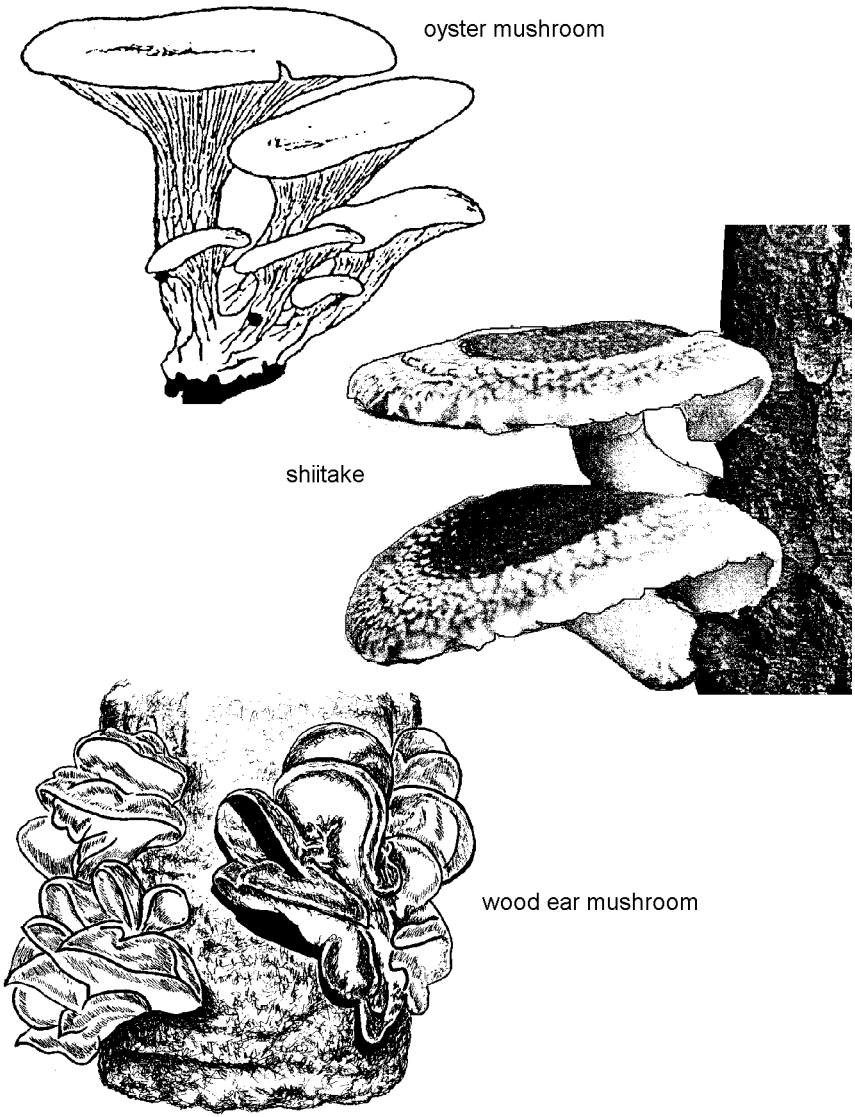

Figure 1: The three mushroom species dealt with in this Agrodok