

# Spotlight on Agriculture

Ministry of Agriculture, Water and Forestry, Directorate of Agricultural Research and Training, Private Bag 13184, Windhoek

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## MUSHROOM CULTIVATION IS POSSIBLE IN NAMIBIA

There are many questions around mushroom growth and cultivation among farmers and individuals in Namibia. Some people believe that mushroom grows only naturally and cannot be propagated or grown. However, mushroom can be easily grown in Namibia and elsewhere using the locally available materials such as grass and straws. Oyster mushrooms (*Pleurotus* species) are a good choice for beginning mushroom cultivation because they are easier to grow than many of the other species, and they can be grown on a small scale with a moderate initial investment. Although commonly grown on sterile straw from wheat or rice, they will also grow on a wide variety of high-cellulose waste materials. Some of these materials do not require sterilization, only pasteurization, which is less expensive. Another advantage of growing oyster mushrooms is that a high percentage of the substrate converts to fruiting bodies, increasing the profitability potential. Oyster mushrooms can become an integral part of a sustainable agriculture system in Namibia provided that proper training and awareness is achieved. Many types of organic waste from crop production, especially in the northern communal area where crop residues are in abundance, can be used to support oyster mushroom production.

Cultivation has been tried in Namibia and proved to be successful. Training was given to farmer groups and to certain individuals in Windhoek with the help from the Ministry of Agriculture, Water and Forestry who funded the project.

Success in mushroom cultivation depends on the effort and time invested by the grower. The substrate used in this experiment was common reed obtained from a river bank and grasses from around Windhoek. In this study, common reed materials were prepared by hand chopping roughly. Mycelia of *P. ostreatus* and *P. sajocarju* were obtained from the Ministry of Agriculture, Water and Forestry at the Directorate of Research and Training.

Mushroom cultivation was accomplished in the experimental mushroom house constructed by the individual person who showed interest in growing mushrooms at his house. The temperature, ventilation and relative humidity were accurately controlled. The house was lined with black plastic sheet inside and was constructed from wood. The floor was also lined with black plastic and kept wet with clean tap water at all time. The door had small openings at



An innovative mushroom grower at his house in Windhoek.



Mushroom bags hanging for fruiting inside the fruiting house.

MUSHROOM CULTIVATION IS POSSIBLE IN NAMIBIA





A mushroom house from outside.

the top to allow a minimum amount of air to filter in. The humidity was maintained by keeping the house floor wet and door closed at all times.

The following procedures for growing *P. ostreatus* and *P. sajocarju* were based on those of the Asia-Pacific Economic Cooperation (APEC) training manual for 2004. Chopped common reed materials were moistened with water until 70–80 % moisture content levels were attained and then placed in nylon bags each containing 10 kg. Ten replicate nylon bags were used for each substrate medium. The plastic bags were sterilized with direct steam at 65–70 °C for 2 hours. After the substrates had been cooled to 20 °C, they were inoculated by spreading spawn on the surface of the substrate. Inoculated bags were kept in a dark room for incubation at 25–28 °C. No light was required during incubation. After 20 days, the substrates were completely colonized by the mycelium. The fully colonized bags were then sliced open on the sides and watered three times a day to stimulate fruit body production. The temperature in the fruiting house was kept low at 21 °C by providing water and 80–90 % relative humidity until fruit bodies developed. The room was ventilated with atmospheric air from outside through openings that had been made above the door. The normal light through the opening above the window was enough for the fruiting bodies not to etiolate. Harvests were started within two weeks after the first slits were made.

In conclusion this experiment showed that although no supplicated machines and methodology were used, the performance of the project in terms of yield was found to be generally satisfactory compared with literature reports. The results showed that the common reed material around town could also be used as mushroom substrate whereby it would contribute to cleanliness of the town



Oyster mushroom ready to harvest.



A mushroom owner showing the fruit bodies that he harvested.

areas. It is advisable that for one to produce mushroom for marketing purposes, production has to be relatively large and run in concurrent stages. It is however possible to grow mushroom for self consumption at home, making use of the common reeds and grasses around town.

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