

OYSTER MUSHROOM PRODUCTION

LEA HORTICULTURE
WEBINAR

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OYSTER MUSHROOM PRODUCTION IN BOTSWANA

- ❖ Oyster (*Pleurotus* sp) mushroom are commonly referred to as gilled mushrooms
- ❖ In Botswana mushrooms are generally called “Mabowa” and the consumption of mushrooms is generally low
- ❖ Mushroom cultivation is low mainly due to the slow uptake by the farmers. Most farmers site difficulties such as:
 - ❖ limited access of mushroom spawn
 - ❖ High electricity and water tariffs

OYSTER MUSHROOM PRODUCTION REQUIREMENTS

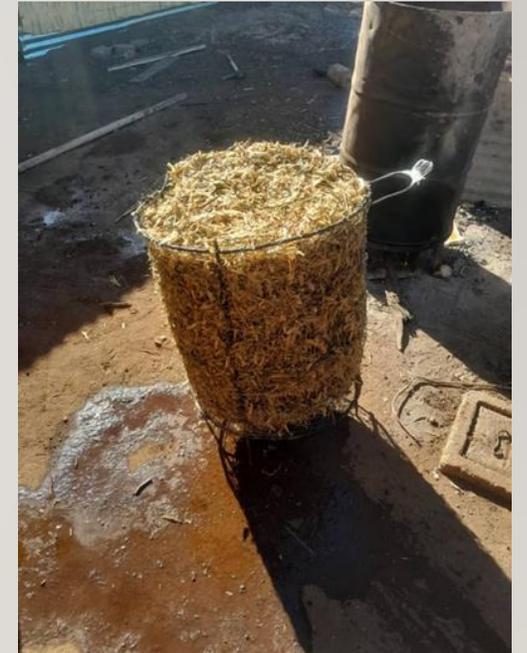
- i. Land to build the production structures and the shed
- ii. Structures to produce the mushroom
- iii. Reliable and good source of spawn (mushroom seed)
- iv. Good and readily available substrate
- v. Clean water supply
- vi. Electricity and Airconditioning (One can operate a successful business without electricity)
- vii. Consumables
- viii. Market access



STEP BY STEP OYSTER MUSHROOM PRODUCTION

SUBSTRATE PREPARATION

- Different types of substrate are available and these include maize straw and cobs, wheat straw, sorghum and millet straw and grasses.
- Chop substrate to allow ease in handling
- Soak the substrate overnight prior to sterilization.



STEP BY STEP OYSTER MUSHROOM PRODUCTION

SUBSTRATE STERILISATION

- Transfer the wet substrate into a mesh wire cage
- Steam at heat $>80\text{ C}$ for 4-8 hrs and allow the substrate to cool down
- Package sterile substrate into bags (2-3kg bags)



STEP BY STEP OYSTER MUSHROOM PRODUCTION

SUBSTRATE SPAWNING (PLANTING)

- The sterilised substrate is inoculated with Oyster mushroom spawn (seed)
- Spawning rate differs depending on the bagging method used, but in most cases its 5-10 % of the substrate
- Insert a neck (25mm pvc pipe) and plug the whole with a cotton wool

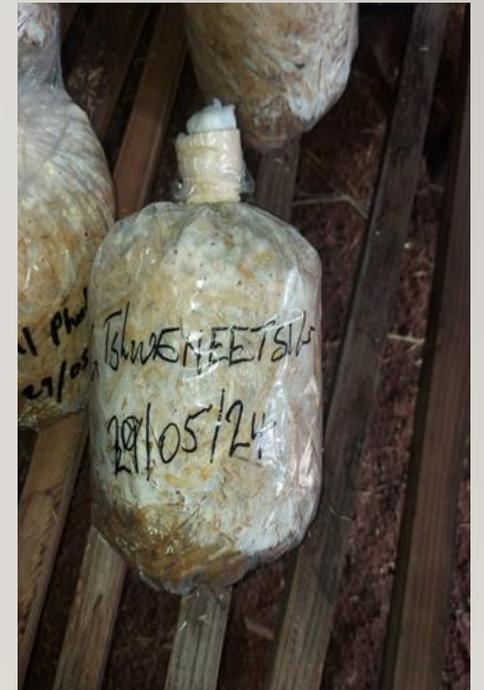
OYSTER MUSHROOM SPAWN



STEP BY STEP OYSTER MUSHROOM PRODUCTION

INCUBATION STEP

- Incubate the bags of spawned substrate in a warm dark room (28-32°C) for 3-5 weeks
- Regularly check progress of substrate colonization and contamination by germs
- Spawn running is complete when the whole bag is white with mycelium



STEP BY STEP OYSTER MUSHROOM PRODUCTION

INDUCTION OF MUSHROOM FORMATION

- Transfer colonized bags into the production room (20-25 °°)
- Make holes/slits into the plastic bags
- Mist the bags and the room with water to cool them and increase humidity
- Window blinds may be opened to allow light
- Mushroom pins should form within three to four days
- Harvest mushrooms when the cap is fully grown



Mushroom pin formation

OYSTER MUSHROOM FRUITING STAGES



Mushroom bags hanged with string



Oyster mushroom ready to harvest

OYSTER MUSHROOM HARVESTING AND PACKAGING

- From pinhead to mature mushroom oyster mushrooms normally take about 3 – 4 days.
- Mushrooms should be picked from a bag without leaving any stubs sticking from the bags.
- This is achieved by twisting the stalk near the point of emergence.
- Use of knives to cut mushrooms from the bags is not recommended.
- Mushrooms are produced in flushes and up to 5 flushes are produced before the substrate is exhausted.
- Package in punnets



OYSTER MUSHROOM PRODUCTION MILESTONE



FIXED COSTS

Table 1: Required fixed costs for Oyster mushroom production enterprise

Fixed Costs		Unit	Price per Unit	Qty	Total cost
1	Straw soaking bins	350 L	450	5	2,250.00
2	Galvanized steel drums 210L	210 L	300	5	1,500.00
3	Packaging Machine		3,000	1	3,000.00
4	Temperature & humidity gauge		400	4	1,600.00
5	Building of 3 x Mushroom houses		40,000	3	120,000.00
6	Air Conditioner		12,000	3	36,000.00
7	Shelter (50 sqm)		25,000	1	25,000.00
8	Plastic Cutting Machine		1,000	1	1,000.00
9	Weighting Scale		2,500	2	5,000.00
10	Straw sterilizing cage		500	5	2,500.00
11	Sub-total				197,850.00
12	10% Contingency				19,785.00
13	Total Fixed Expenses				217,635.00

PROFIT PROJECTIONS

- Projected profit are based on the Biological efficiency of the mushroom
- To be profitable, the best BE will be above 70%.
- Refer to Table 8 in the Oyster mushroom Production Guidelines

