IMPROVED LOW-COST INDOOR OYSTER MUSHROOM PRODUCTION

INTRODUCTION

Oyster mushrooms (Pleurotus spp.) are a popular and relatively easy-to-grow edible fungus that can be cultivated in a small indoor space. This manual provides a step-by-step localized guide on how to set up a low-cost indoor oyster mushroom production system for personal or small-scale commercial use. The manual considers results from Buhera's Sustainable Villages and Murehwa Centre's Methodist Church.

MATERIALS NEEDED

- Oyster mushroom spawn (reach out for reputable dealers)
- Substrate or host material (wheat straws, sawdust, corn cobs, cotton husks, grass or a mix)
- Grow bags (3 and 5 kg transparent plastic bags)
- Drill bit
- Thermometer and hygrometer
- Misting bottle or humidifier

- Lighting (optional, we recommend use of natural light)

STEP 1: PREPARE THE SUBSTRATE

1. Chop or shred the substrate material into small pieces that can fit into the plastic bags.
2. Pasteurize the substrate by soaking it in hot boiled water for 1-2 hours to kill any competing microorganisms.
3. Drain the excess water and allow the substrate to cool to room temperature.

STEP 2: INOCULATE THE SUBSTRATE

1. Mix the cooled substrate with the oyster mushroom spawn, following the recommended ratio (Using 2kg spawn divide it into 5 parts per bag).
2. For 5 kg bags 2kg spawn = 3 bags and for 3kg bags = 5 bags
3. Pack the inoculated substrate into the grow bags or containers, leaving 2-3 inches of headspace.

4. Hang the bags or sit them, leaving a small opening for aeration.

STEP 3: INCUBATE THE MUSHROOMS

1. Place the inoculated containers in a warm, dark area with good air circulation (e.g. a closet or cabinet).

2. Maintain the temperature between 65-75°F during the incubation period, which typically lasts 2-4 weeks.

3. Monitor the humidity and mist the containers if necessary to keep the substrate moist but not waterlogged.

STEP 4: INDUCE FRUITING

1. Once the substrate is fully colonized (the mycelium should cover the entire surface), move the containers to a well-ventilated area with lower temperatures (55-65°F) and increased light.

2. Drill 1/4" holes around the sides of the containers to allow for air exchange and mushroom growth.

3. Mist the containers several times per day to maintain high humidity (85-95%).

STEP 5: HARVEST AND ENJOY

1. Once the mushrooms start to form, monitor them closely and harvest when the caps are fully open but before they start to curl downwards.
2. Gently twist and pull the mushrooms from the substrate, taking care not to damage the remaining mycelium.
3. Enjoy your fresh oyster mushrooms in your favorite recipes!

CONCLUSION

Indoor oyster mushroom cultivation can be a rewarding and cost-e ective way to produce your own fresh, high-quality mushrooms. With the right equipment (low cost in this case) and a bit of patience, you can establish a successful small-scale operation in your own home.

Experiment with di erent substrate materials and growing conditions to find the optimal setup for your enterprise.

BIOLOGICAL CONTROLS

Hydrated Lime should always be available during fruiting.

FRUIT COLOUR DISEASE OBSERVATIONS

Green Oyster fruits = excess moisture (spray with lime and limit moisture)

Black Oyster = write o fruits and isolate from other bags

LESSONS LEARNT

Maintain room temperature in production room.

Winter is not your friend. Preferably grow mushrooms around summer. Disinfect production room (wash walls and floors with warm disinfected water)

Seal o windows and light entry points with dark plastic paper.

PROFITABILITY

Harvest 1 – 2 kgs per 3 kg bag and 2 – 3 kgs per 5 kg bag

Selling price $1 per 200 grams = $5 – 10 per bag (potentially twice per bag)

Cost of producing one bag = $0.50 - 0.75