BUSINESS PLAN FOR THE CULTIVATION AND SALE OF OYSTER MUSHROOMS

(Pleurotus ostreatus)

1. INTRODUCTION

1.1. Market Overview and Project Relevance

The modern agricultural market is actively shifting towards sustainable and eco-friendly solutions. The production of **Oyster Mushrooms (Pleurotus ostreatus)** is not just a business but a **strategically significant industry** that contributes to the **green economy**.

In Uzbekistan, the **demand for high-quality, eco-friendly food products** is increasing, but local mushroom production does not fully meet market needs. This project aims to **fill the market gap, reduce import dependency, and ensure stable domestic production**.

1.2. Project Objective

The goal of the project is to establish a **modern, high-yield mushroom farm** focused on **Oyster Mushroom cultivation** and **processing (drying, packaging, preservation)**.

The selected strain: **Pleurotus ostreatus (heat-loving variety)**, which is **optimal for the climate of Uzbekistan** and suitable for **intensive cultivation**.

2. PROJECT DESCRIPTION

Parameter	Value
Project Budget	50,000 USD (650,000,000 UZS at 1 USD = 13,000 UZS)
Total Area	1,500 m²
Production Zones	300 m² (incubation), 300 m² (fruiting)
Storage Area	200 m²
Processing & Packaging Area	300 m²
Substrate Preparation	150 m² (shredding), 150 m² (sterilization)
Production Capacity	6-8 tons of mushrooms per month
Type of Facility	Underground (bunker-type)
Payback Period	~24 months

3. PRODUCTION PROCESSES

3.1. Substrate Preparation

The **substrate** is the foundation of mushroom cultivation, consisting of **straw, sawdust, sunflower husks, and other organic materials**. The preparation process includes:

- **Shredding and cutting** straw or other materials into small particles.

- **Moisturizing and fermenting** raw materials in an open-air sheltered area.
- **Pasteurization (steam treatment) or cold sterilization** to eliminate pathogenic microorganisms.
- **Cooling** the substrate to the required temperature before inoculation.

3.2. Cold Sterilization Process

Cold sterilization is a **low-energy** method of substrate treatment without the use of high temperatures. It allows for **nutrient preservation** and speeds up the inoculation process. The main steps include:

- **Soaking the substrate** in a solution of **sodium hypochlorite (NaClO) or hydrogen peroxide (H_2O_2)** for 12-24 hours.
- **Applying bactericidal agents**, such as lime solution (calcium hydroxide) or bio-fungicides.
- **pH level control**, maintaining a range of 5.5–6.5.
- **Drying and aeration** to remove excess moisture and prevent mold growth.

Advantages of Cold Sterilization: ✔ **Lower energy costs** by eliminating water heating for pasteurization. ✔ **Minimal nutrient loss** in the substrate. ✔ **Eco-friendliness**, as it requires less water and fuel.

3.3. Inoculation

After preparation, the substrate is **placed into specialized bags** (mushroom blocks), and **mycelium (mushroom spawn)** is added. Key requirements: ✔ **Even distribution** of mycelium across the substrate. ✔ **Sterile conditions** during inoculation. ✔ **Temperature and humidity control** during bag sealing.

3.4. Incubation

Incubation is the process of **mycelium colonization** inside the substrate, occurring in **semi-underground** rooms under optimal conditions: ✔ **Temperature: 22-25°C** ✔ **Humidity: 85-90%** ✔ **No light or ventilation in the early stages**

The incubation period lasts **14-20 days**, after which the mushroom blocks are transferred to the fruiting zone.

3.5. Fruiting

Once incubation is complete, the mushroom blocks are moved to **underground fruiting chambers**, where conditions are adjusted for mushroom growth: ✔

Temperature: 14-18°C ✔ Humidity: 90-95% ✔ Daily ventilation (fresh air supply) ✔ Lighting: 12 hours per day ✔ CO_2 level control for optimal fruit body formation

The first fruiting wave appears within 10-15 days, and a full harvesting cycle lasts up to 6 weeks.

4. FINANCIAL ANALYSIS

4.1. Labor Cost Breakdown

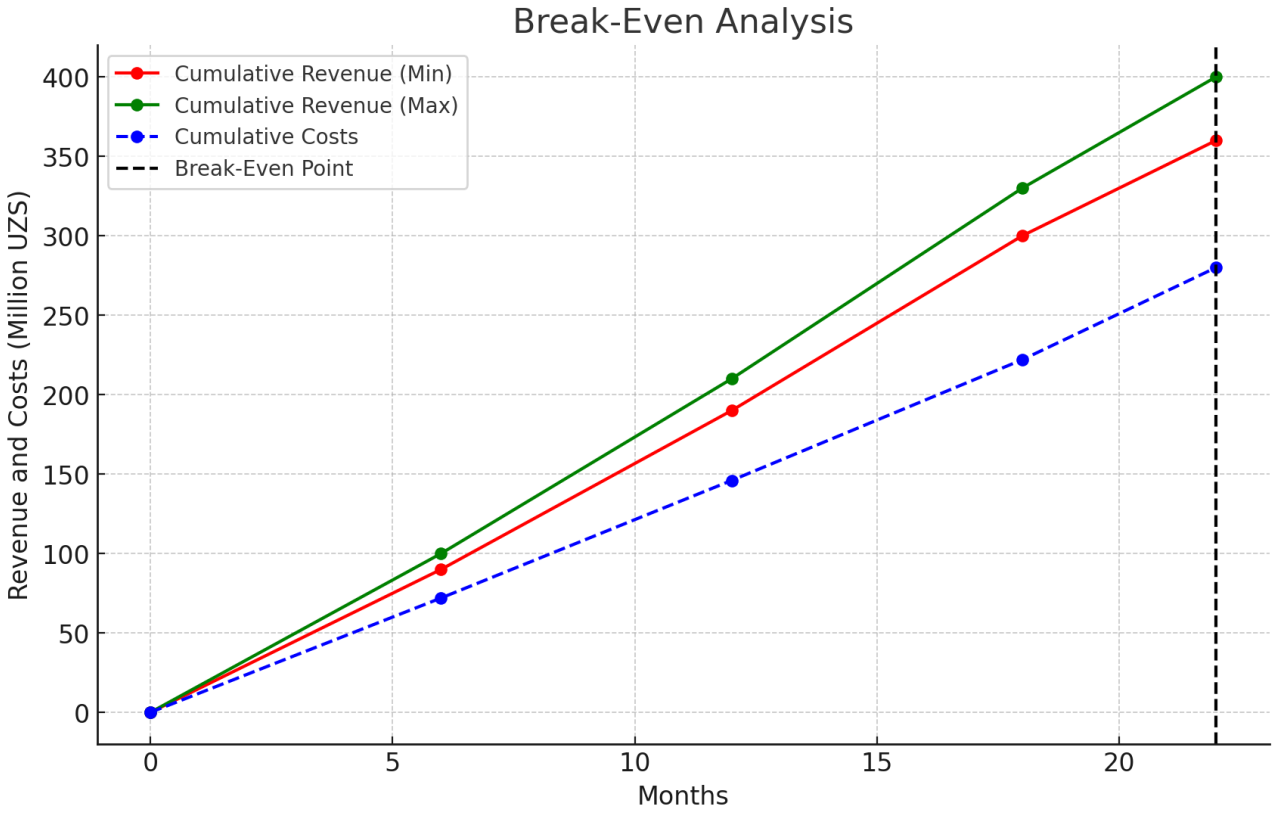
Position	Number	Monthly Salary (UZS)	Annual Salary (UZS)
Director	1	9,072,000	108,864,000
Technologist	1	5,360,000	64,320,000
Workers	4	3,500,000	168,000,000
Driver-Expeditor	1	4,500,000	54,000,000
Energy Engineer	1	6,430,000	77,160,000
Sales Manager	1	6,230,000	74,760,000
Total	9	**47,162,000**	**566,064,000**

4.2. Capital Expenditure (CAPEX)

Expense Category	Amount (UZS)
Construction & Earthworks	154,000,000
Climate Control Equipment	95,000,000
Production Equipment	91,000,000
Processing & Packaging Equipment	130,000,000
Initial Purchase of Substrate & Mycelium	65,000,000
Electrical & Water Supply	65,000,000
Miscellaneous (permits, certification, registration)	50,000,000
Total	**650,000,000**

4.3. Operational Expenses (OPEX)

Expense Type	Monthly (UZS)	Annual (UZS)
Labor Costs	47,162,000	566,064,000
Electricity (reduced by 30% due to underground energy efficiency)	10,500,000	126,000,000
Substrate & Materials	10,000,000	120,000,000
Miscellaneous	5,000,000	60,000,000
Total	**72,662,000**	**872,064,000**



Break-Even Analysis Key Indicators:

- **Red Line** – Cumulative Revenue at Minimum Income
- **Green Line** – Cumulative Revenue at Maximum Income
- **Blue Line** – Total Costs
- **Black Dotted Line** – Break-Even Point (22nd month)

This visualization demonstrates the financial trajectory of the project, showing the period required to cover operational and capital expenses before reaching profitability.

4.4. Profitability Forecast

✔ Wholesale Price per kg: 13,000 - 15,000 UZS

✔ Monthly Revenue: 88,400,000 - 102,000,000 UZS

✔ Annual Revenue: 1,060,800,000 - 1,224,000,000 UZS

✔ Net Profit: 188,736,000 - 351,936,000 UZS

✔ Profitability: 17.8% - 28.8%

Conclusion:

This **eco-friendly, scalable, and high-margin** business offers **a unique opportunity for investors** with **minimal risk and strong market demand**.