

A starter's guide to
mushroom cultivation

mushroom Your Growth



**JAMMU & KASHMIR
ENTREPRENEURSHIP DEVELOPMENT
INSTITUTE**

Introduction

Mushroom cultivation has been a great source of income for centuries even as the farming took its organized shape in India only recently. The cultivation of this nutritious vegetarian delicacy -- rich in protein, vitamins, minerals, folic acid and iron -- in controlled conditions started recently in India.

The much-in-demand vegetable can be grown in a temperature between 20 and 30 degrees Celsius and required relative humidity is 55-75 per cent. This makes Jammu and Kashmir a suitable place for mushroom cultivation and processing.

Mushrooms are of different types:

- a) Button Mushroom
- b) Dhingri (Oyster)
- c) Paddy Straw Mushroom

Market Potential

Market for mushroom is growing rapidly owing to nutritious values and special tastes. The main consumers of mushrooms are Chinese food restaurant, hotels, clubs and households as well. The growing domestic and export market as also the delicacy and food value provides extensive and good potential for cultivation of mushroom. There is also growing market for processed, dried and packed mushrooms as their shelf life is longer.

In 2011-12, the production of mushrooms was at 6,983.23 quintals, out of which 5,442 quintals were from Jammu division and 1,541.23 quintals from Kashmir.

Steps to mushroom cultivation

For successful cultivation, careful attention has to be paid to three aspects -- good compost, mushroom seeds and right temperature during growing period.

Natural compost is prepared from horse dung and wheat or barley straw. Some quantity of chicken manure and three kilograms of urea per ton of compost can be added.

Mushrooms are grown in wooden trays or boxes of 100 cm x 50 cm x 15 cm. They are filled well with the compost and pressed firmly leaving 3 cm clear space on top of the tray. The seed is scattered on the surface of the compost which is then covered with a thin layer of compost.

After that the trays are covered with old newspaper sheets and water is sprayed to provide humidity. The trays are then stacked vertically. At a temperature of around 24 - 25 degrees Celsius white cottony mycelium (fungus) spreads and permeates through the compost.

It takes around 12 to 15 days for the complete spawn running.

Ultimately, the surface of the compost is covered with half to one inch level of casing soil. It is sterilized to kill insects, nematodes and molds. The casing soil is spread over plastic sheets and treated with formalin and stirred frequently for a week to remove formation fumes. After casing, the temperature has to be maintained at 24-25 degree Celsius for three days after which it must be lowered to 18 degree Celsius. Thus, batches of trays must be arranged in such a way that there is a regular production.



Mushroom Processing

Fresh mushrooms are washed in cold water and then blanched in boiling water for around 34 minutes. Then they are dehydrated in drier and packed. It is advisable to pre-treat fresh mushrooms in a solution containing salt water to prevent discoloration.

Packing is very critical as formation of moisture contaminates mushrooms very quickly. Hence plain cans and water of 2 percent salt and 0.2 percent citric acid are used for packing.

The cans are exhausted at 190 degree Celsius for 7-8 minutes, sealed and processed under pressure for around half an hour. Yield of final product depends up on the quality of dryer, manufacturing process employed, moisture content in fresh mushrooms and moisture required in the final product. Hence, average yield is taken at 25 percent.

Costs for establishing 400 trays mushroom cultivation unit or four batches in a year
(in Rs)

Total Capital Cost	9.77 lakhs
a) Land	Leased/owned/hired
b) Building (1000 sq ft)	5.00 lakhs
c) Machinery/Equipments	4.77 lakhs
Operational Cost	1.80 lakhs
Grand Total	11.57 lakhs

Earning

Returns per batch from mushrooms	2.40 lakhs
Returns per batch from compost used as manure (4 quantals)	0.04 lakhs
Total returns per batch (mushroom + compost)	2.44 lakhs
Returns from mushrooms/year (4 batches)	9.60 lakhs
Returns from compost per year (4 batches)	0.16 lakhs
Total returns per year (4 batches)	9.76 lakhs

Yield Per batch: 4 kg/tray

Total mushroom yield from 400 trays: 1,600 kgs

Relevant Departments to approach for:

- 1) Department of Agriculture
- 2) Sher-e-Kashmir University of Agricultural science and Technology, Kashmir.
- 3) Center of Research and Development, University of Kashmir.
- 4) Krishi Vigyan Kendras



Jammu and Kashmir
among the best
places for mushroom
cultivation
and processing

Checklist:

Land

- Area: ½ kanals
- Lease deed, No Objection Certificate from Pollution Control Board.

Building

Size of different sheds: 25 X 20 (2 Rooms)

Equipment

1. Stacking Trays/Wooden Trays	400
2. Spray Pump with two attachments	1
3. Water Tank	1
4. Thermometer	1
5. Weighing Scale	1
6. Hot and Cold AC	2
7. Disposable Gloves	5

Raw Materials:

1. Wheat/ rice bran
2. Poultry waste
3. Urea
4. Potash
5. Choker
6. Oil cakes
7. Molasses
8. Gypsum
9. Peat soil
10. Soil
11. Spawn
12. Waste paper/newspapers

Investment

- Check various schemes at JKEDI

Buyers

- Domestic Market like Households, Hotels and Restaurants.
- National Market
- Export Markets

Suppliers

- Registered dealers of:
 - Equipments
 - Chemicals
 - Spawn
 - Peat soil
 - Molasses
 - Gypsum

