

Mushroom (White Button) Cultivation Under Shed System: Cost and Profit Analysis

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Mushroom cultivation has been practiced in the world for thousands of years, while the history of mushroom production in India is almost three decades old. At present, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, Maharashtra, Tamil Nadu, Karnataka, and Telangana are the major mushroom growing states at the trade level.

In our country mushrooms are used as food and medicine. Mushrooms have special importance all over the world due to their high level of food values like protein, carbohydrates, mineral salts, and vitamins. In India, mushrooms are known as khumb, khumbhi, bhamodi and bunchi etc. In order to promote mushroom cultivation, agricultural universities and other training institutions conduct training programs throughout the year to farmers on subjects such as mushroom cultivation method, mushroom seed production technology, mushroom production, and processing, etc. The state government is also giving a 50 percent subsidy to the farmers of the state for the cost of mushroom cultivation.

Varieties of mushrooms grown in India

There are around 10,000 species of edible mushrooms in the world, out of which 70 species are considered suitable for cultivation. Five types of edible mushrooms are cultivated commercially in the Indian environment which are- White Button Mushroom, Dhingri (Oyster) Mushroom, Milky Mushroom, Paddy straw Mushroom, Shitake Mushroom.

White Button Mushroom

The white button mushroom was first cultivated in low temperature places, but nowadays it is being cultivated elsewhere by adopting new techniques. 22–26 °C temperature is required for the spread of the fungus trap of button mushrooms. The time from October to March is considered suitable for the seasonal cultivation of white button mushrooms in northern India. It can be grown easily in ventilated rooms, sheds, huts. Both permanent and temporary sheds can be used for white button mushroom cultivation. Farmers who are short of funds can use temporary sheds/huts made of bamboo and paddy straw in which 12 to 16 slabs of 4 x 25 feet size can be prepared for growing mushrooms. It accommodates about 10- 12 ton compost. For making the hut we clean the area and do the marking as per design given below. This is followed by digging holes at the marked points for inserting bamboos. Thereafter racks are made using plastic rope and the hut is covered with paddy straw that had polythene inside in the roof part to avoid damage due to rainfall and also sheets outside the sides of hut to control aeration and temperature. The polythene sheet is also spread on the racks and cultivation is done in beds instead of bags. Layout of a 60'x30' feet shed is given in Fig 1.

Compost formation

Most farmers adopt the technique of preparing compost by the long method. It is easy and cheap to prepare compost by this method. The process of preparing compost by the long method is completed in 28-30 days which involves 6-7 turnings. Compost is made by using Wheat straw - 300 kg,

poultry manure – 60 kg, wheat bran – 7.5 kg, gypsum – 30 kg, farmer manure (calcium ammonium nitrate) 6 kg, urea – 2 kg, potash – 2.9 kg, single super phosphate – 2.9 Kilogram, molasses – 5 kg. Or Mustard husk – 300 kg, poultry manure – 60 kg, wheat bran – 8 kg, gypsum – 20 kg, urea – 4 kg, superphosphate – 2 kg, molasses – 5 kg. At the end when compost manure is ready, it appears dark brown. The moisture content in the compost should be 60-65 percent. The amount of nitrogen in the compost should be about 1.75-2.25 percent. Compost should be completely odorless of ammonia gas. Compost should be free of pests and germs. The pH value of the compost should be between 7.2-7.8

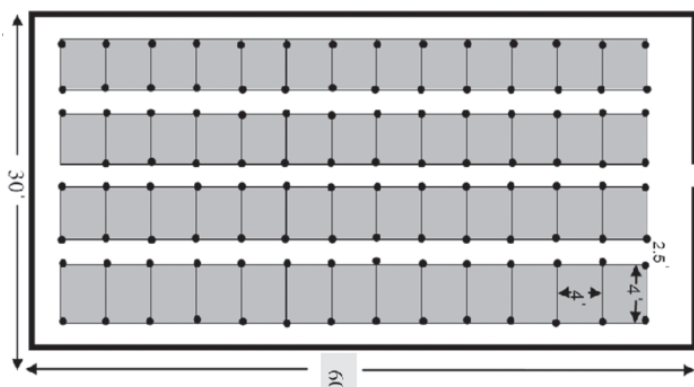


Fig 1: Layout of mushroom bed preparation

Mushroom spawning

After placing polythene sheets on the slabs or beds in the shed prepared for mushroom production, a layer of compost 6-8 inches thick is spread followed by mushroom seeds / on top of the compost. Mix the spawn. 500 to 750 grams of seed is sufficient for sowing 100 kg of compost fertilizer. Polythene should be covered after sowing spawn.

Casing

Adding an inert material to the top layer of the compost is called casing which promotes the spore bearing structure to the mushroom. Casing is done after 2 weeks of spawn run and the casing layer should be 3.8-5 cm thick. Casing helps in retaining

water in that area. Casing mixture can be- 2 parts of soil with one part of peat or 3 parts of cow dung with one part of light soil. To desiccate the casing mixture, 2-3% formaline solution should be dampened and covered with a polythene sheet for 3-4 days. Casing helps in the vegetative growth of mushrooms. The appropriate amount of moisture remains in the compost after casing. In case of non-casing, mushrooms are released in very small amounts resulting in economic loss.

Fruiting and plucking

After 12-15 days of fruiting and plating the layer of casings, small buds of mushroom appear on the compost which develops in 4-5 days and turns into small white button mushroom. When the size of these white button mushrooms is 4-5 centimeters, it should be twisted and broken, considering them mature. The white button mushroom should be used soon after plucking because it begins to deteriorate soon. The most important thing is that about 5.00 kg of white button mushroom can be obtained from compost manure made from 10.00 kg of dried straw used.

Table 1: Cost economics of mushroom cultivation

Sl. No.	Particulars	Value
1.	Shed material (bamboo poles, polythene sheets, sutli, paddy straw) cost	20,000/-
2.	Compost & spawn cost	80,000/-
3.	Labour, water & electricity cost	34000/-
4.	Casing, insecticides & pesticides, packaging & transportation cost	10,000/-
Returns		
5.	Mushroom yield per shed (3000 kg sold at 100 Rs./kg)	300000/-

Cost and returns per shed

Seasonal cultivation of mushroom is done by making small sheds over specified area and the size of the shed is 60'x30'approximately. The cost incurred per shed is given in Table 1.

Total cost per shed here is Rs. 1,44,000. There is 11% interest rate and 10% depreciation rate for fixed assets and after adding these values the total cost becomes Rs. 1,44,485 so the profit earned is Rs. 155,515. Hereby, it can be concluded that mushroom cultivation is highly profitable enterprise for the

farmers. In the last few years, the trend of farmers has increased rapidly towards mushroom cultivation, as mushroom cultivation has become a source of better income. Just a few things have to be kept in mind, good price of mushroom is available in the market. Farmers in different states are making good profits from mushroom cultivation, with less space and less time and also the cost of cultivation seems to be very low as compared to the profits. For mushroom cultivation, farmers can take training at any Krishi Vigyan Kendra or Agricultural University.

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