

HORTICULTURE

MUSHROOM (WHITE BUTTON) CULTIVATION



Button mushroom

Cultivation of white button mushroom is being undertaken by the farmers on a large scale, especially in the cooler hilly regions. One crop can easily be taken during the winter season in the plains and foot hills of North India. Economic cultivation of white button mushroom requires high levels of skills; hence it will be desirable to undergo specialized training at some appropriate institution before undertaking this as activity. The National Research Centre on Mushroom, Solan has developed package of practices for cultivation of white button mushroom.

COMPOST PREPARATION

Mushroom should be grown on an artificially prepared substrate called 'compost', and is prepared by two methods, viz; long method and short method. The compost preparation by short method is relatively more expensive and technical, and therefore, may not be economical for seasonal growers. The long method of compost preparation is most suitable for seasonal growers.

Compost preparation by long method

Ingredients

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| • Wheat straw | 300 kg |
| or | |
| • Paddy straw | 400 kg |
| • Calcium Ammonium Nitrate | 9 kg |
| • Urea | 3 kg |
| • Muriate of Potash | 3 kg |
| • Single Superphosphate | 3 kg |
| • Wheat bran | 15 kg |
| • Gypsum | 30 kg |
| • BHC or Lindane Dust (5%) | 250 gms |
| • Molasses | 5 kg |

MIXTURE PREPARATION

Spread over a concrete floor the base materials (wheat/paddy straw) and sprinkle water 2–3 times a day to allow it to absorb sufficient moisture (75%) for two days (48 hrs). Alongside, 12–16 hrs before stacking of wet wheat/paddy straw; molasses, wheat bran and fertilizers should be mixed in a separate heap, lightly watered and covered with moist gunny bags.

PILE MAKING

Mix thoroughly the wet mixture of fertilizers and wheat bran and moist wheat/paddy straw and stack in a heap (150 cm width × 150 cm height). The length of the heap depends on the quantity of the base material used. Press heap from the top and left as such for five days.

TURNING SCHEDULE

Eight turnings as per the following schedule should be adopted:

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| First | Give first turning on 6th day. The heap is dismantled by using wooden or iron boards and remade for proper aeration. Water may be added if needed. In order to provide equal opportunity to decompose entire mixture, the turning should be done in a way that the central portion should be at bottom, top portion should be placed at the centre and the bottom portion (inner side) is kept on the top (outer side). |
| Second | Give second turning on 10th day. |
| Third | The heap is turned for the third time on 13th day and gypsum is added. |
| Fourth | Fourth turning is given on 16th day. |
| Fifth | Give fifth turning on 19th day. |
| Sixth | Give sixth turning on 22nd day. |
| Seventh | Give seventh turning on 25th day. |

All the above turnings should be given following the method of first turning.

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| Eighth | Eighth tuning is given on 28'h day. BHC or lindane dust is also mixed. At this stage check ammonia and moisture percentage by pressing compost between palm and fingers. |
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If no water flows out from compost but palm and fingers become only moist, it indicates that right moisture level (68–70%) in the compost exists. In order to test presence of ammonia, the compost should be smelled. If there is a feeling of smell similar to that of animal urine in the cow shed, then one more turning should be given. The temperature of ammonia free compost should be brought to 25°C and after that spawning is carried out.

Spawning

The above prepared compost is used for spawning. The spawn should be white with silky mycelium and free from undesirable smell. Before starting the spawning, spawning area, utensils and implements to be used in the spawning should be treated with 2% formalin solution. The workers should also wash their hands with soap so as to prevent infections to the compost. Spawning is done @ 0.5–0.75% (In 100 kg compost mix 500–750 gm spawn).

Filling of spawned compost

Prepare wooden/bamboo shelves at 60 cm. interval in vertical direction (height wise) in any well ventilated room. Two days before the spawning, treat the room (roof, walls and floor) with 2% formalin solution and keep it closed for over night.

Fill 10–15kg spawned compost in polythene bags and fold them just like paper envelopes. The bags are then placed on shelves close to each other. Maintain 22–25°C temperature and 80–85% humidity in the room.

PREPARATION OF CASING SOIL AND ITS APPLICATION

Casing soil

Spawn run takes place after 12–15 days of spawning and dark brown compost turns whitish. At this stage, application of casing soil is essential for fruiting. Casing soil is an equal mixture of two years old Farm Yard Manure and loam soil. Spray the casing with 2% formalin solution (Add 2 liter formalin, 40% a.i., in 40 liters of water, and keep it covered with polythene sheet for 10–15 days. Remove the sheet a day before its application. The casing preparation work should be done 15 days in advance.

Application

Open the spawn run compost bags, level their surface and slightly pressed. Then, a casing soil layer of 3–4 cm thickness is applied on the

even surface of bags. During this period, 22–25°C temperature and 80–85% humidity is maintained. The cased bags require much attention. Check temperature and moisture in the bags daily. Light spray of water is also carried out.

Post-casing Management

A week after casing, mycelium is impregnated in the casing layer and the room temperature is lowered from 22–25°C to 14–18°C. The pinheads start appearing within 7–10 days and mature in next few days. At this stage, more humidity is required; hence 85–90% humidity should be maintained. Watering should be done twice a day (morning and evening). In addition to temperature and humidity, good ventilation is also required at this stage. Therefore, the cropping room should have ventilators, windows and door fitted in the right direction. By opening the ventilators, windows and doors for some time in the morning and evening, required air may be provided.

Harvesting

Pinheads become fully grown mushrooms in 2–4 days and harvested by twisting when their cap diameter is 3–4 cm and are in closed condition (button stage). The harvested mushrooms should be consumed or sold off as soon as possible as it is a perishable vegetable. Harvest mushrooms daily and complete production is obtained in 8 to 10 weeks. On an average, one quintal compost produces about 12 kg mushroom.

ECONOMICS

Cost of cultivation varies from place to place depending upon the cost of raw material, labour, site conditions, and marketing opportunities etc. On an average, production cost is between Rs 10–15 per kg. The produce is sold at about Rs 30 to 50 per kg depending upon the season and location of market, etc.

For more details contact:

Director
National Research Centre
for Mushroom (ICAR)
Chambaghat
Solani 173 213