MUSHROOM CULTIVATION

Mushrooms, also called 'white vegetables' or 'boneless vegetarian meat' contain ample amounts of proteins, vitamins and fibre apart from having certain medicinal properties. Mushroom contains 20-35% protein (dry weight) which is higher than those of vegetables and fruits and is of superior quality. Mushrooms are now getting significant importance due to their nutritional and medicinal value and today their cultivation is being done in about 100 countries. At present world production is estimated to be around 5 million tonnes and is ever increasing. Though 20 mushroom varieties are domesticated about half a dozen varieties viz; button, shitake, oyster, wood ear and paddy straw mushrooms contribute major share of the total world production.

Mushroom offers prospects for converting lignocellulosic residues from agricultural fields, forests, etc. into protein rich biomass. Such processing of agro waste not only reduces environmental pollution but the byproduct of mushroom cultivation is also a good source of manure, animal feed and soil conditioner.

Cultivation of paddy-straw mushroom (Volvariella volvacea)

The paddy straw mushroom can be successfully cultivated in the plains of Kerala throughout the year where the temperature ranges between 28-32ºC. The straw beds can be laid out in sheds, veranda of buildings and during summer under shades of trees. Beds should not be kept under direct sunlight. Prepare a raised platform of 1 m long and 0.5 m broad with wooden planks or bricks. Ten to fifteen kg of well-dried and hand-threshed straw is required to raise a single standard bed. For spawning this bed, two bottles of spawn and about 100 to 150 g of red gram powder are needed. First the straw is made into twists of about 5 to 8 m long and 20-25 cm diameter. The twists are tied into small bundles and are kept immersed in clean water in tanks for about 6 to 12 hours. After this, the bundles are taken out and kept aside for some time to drain the excess water. The bundles are untied and the straightened twists are placed length-wise over the platform in a zigzag fashion. The twists are placed as close as possible. Keep another layer over the first layer crosswise. These two layers form the first layer to be spawned. Break open the spawn bottles and carefully divide the spawn into small bits of 2-2.5 cm thick. Place these bits of spawn all along the periphery of the bed, about 5-8 cm away from the edge and 10 cm apart. Sprinkle a teaspoon full of coarsely powdered red gram powder before and after spawning the first layer. Build the next layer with one row of twist as done before and spawn it. Make successive layers until the straw twists are finished. After placing the last of twists, press the bed thoroughly from the top in order to drain excess water. Make the bed as compact as possible and cover with a transparent polythene sheet to maintain the temperature and relative humidity within the bed. Place another wooden plank over the

bed and keep 4-5 bricks above the plank to get more compactness. Keep the bed undisturbed for 6-7 days. Slowly remove the sheet and observe the moisture level of the straw. If the moisture is excess remove the sheets for half an hour and then cover it again as before. Small white round pinheads appear all along the sides of the bed after 7 days and mature into button and egg stage on 9th day. Harvest the mature sporocarps in eggs stage. About 2-3 kg of mushrooms can be harvested from 10 kg of straw. Cropping lasts for 2-3 days. After the harvest, the spent straw can be sun-dried and used as cattle feed.

Instead of twists, the beds can be laid out using small bundles of straw each weighing about one kg. Place four such bundles of straw side by side over the platform with loose ends towards the same direction. Over this, place another four bundles, the loose ends towards the opposite direction. These eight bundles form one layer, which is to be spawned as in the case of twists.

Cropping and yield: Matured and fully opened sporocarps are harvested by placing the thumb and forefinger near the base of the fruiting body and twisted in clockwise direction to get detached from the mycelium. An average yield of 500-700 g can be harvested from 1 kg of straw. The spent straw can be used as enriched cattle feed.

Yield ranges from about 100-200% of the dry weight of the substrate and depends on the substrate combination as well as the way in which the substrate has been managed during the fruiting season. The richer the combination and the whiter and denser the mycelium, the greater will be the mushroom yield.

To increase yield, the most common supplement used is urea or organic fertilizer dissolved in water (100 gm in 100 liters water). Using a plastic mist sprayer, the solution is sprayed on the surface immediately before fruiting.

Marketing: Mushroom has a good overseas market in which the present contribution of India is negligible. In the domestic market the availability of mushroom is limited to cities and big towns only. Mushrooms can be marketed either fresh or after dehydration. There is huge international demand for dried mushroom and the farmers can get better returns by tapping these sources.

Unit cost: In the present model, under production sector, a unit of ten beds will be given to a beneficiary at a unit cost of Rs. 350.00