

Controlled-Environment Greenhouse



Agriculture, Fisheries
and Conservation Department

Cultivating Organic Black-head Straw Mushrooms

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From the Editor

In our August 2005 issue, we gave a report on how a farm used controlled-environment greenhouses to cultivate organic Lingzhi. Recently, we learnt that the farm also uses controlled-environment facilities to cultivate organic black-head straw mushrooms throughout the year. This issue is a report on our revisit there.



CE Mushroom Cultivation Room

A large CE greenhouse in the farm is divided into several separate rooms for mushroom cultivation. Each room is equipped with an automatic steam transmission system, mist sprayers, ventilation facilities and lighting system to adjust the illumination, temperature, relative humidity and ventilation to suit the different stages of mushroom development.



External view of cultivation room



Steam transmission system



Mist sprayer



Ventilation facilities

Outside each mushroom cultivation room, display devices showing the air temperature of the room and the temperature of the culture material are provided so as to maintain a controlled-environment.



Movable multi-tier metal racks are used as culture beds.



Cultivation Management

Use cotton waste, wheat bran and a small amount of lime as culture material. Put mushroom spawn on the fermented and steam-sterilised culture material for mycelia development. High humidity, high temperature and a dark environment are favourable for the development of the mycelia. Spray lime water to the culture material on the second day after adding the spawn to adjust the pH to 7, which facilitates the development of the fruiting bodies.

Growing conditions for the fruiting bodies: room temperature at 33°C; temperature of culture material at 30°C; relative humidity at 90%; good ventilation; and illumination at 500 lux.



Development of mycelia



Early stage of mushroom development



Later stage of mushroom development



Harvesting

Ready for harvest 7 days after spawning. The harvest period lasts for about 3 to 4 days. As straw mushrooms cannot stand long periods of storage and transportation, fresh mushrooms have great market potential.

