

Successful Cultivation of *Lentinus edodes* (Berk.) Sing. (Shiitake) on Synthetic Logs

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Shiitake [*Lentinus edodes* (Berk.) Sing.], a mushroom primarily of temperate climates, is by far the most important specialty mushroom in North America. Judging from the inquiries received, aspiring growers here continue to strive for successful cultivation of this ancient Chinese mushroom with a long standing as a culinary delicacy and a beneficial medicinal mushroom, now widely supported by scientific studies. The objectives of this article are: (1) to review and to lay a solid foundation on basic stepwise operations to gain an intuitive understanding (including a special section on forcing hua-gu, a form of winter shiitake with cracked flowerlike pattern on the cap, the most expensive shiitake on the market); (2) to identify key stages during cultivation that require decision-making and undivided attention; and (3) to recognize the features of North American shiitake growers, and to address pressing issues and cultivation problems confronting them. Examples of practical and precise information are given on cultivation, from obtaining

cultures/spawns (liquid, etc.), selecting sawdust particle size, to harvesting. Key steps requiring attention are: (1) strain selection based on temperature requirements for fruiting, growth rate, fruiting rate, quality, and other characteristics. Reserved strains should also be chosen in preparation of unforseeable strain attenuation (degeneration); (2) recognition of physiological maturity of vegetative mycelial growth during spawn run; (3) timing of removal of bags in regard to browning/bark formation (browning inside of the bag vs. outside of the bag); (4) method of induction of primordia, usually water soaking, and how, as well as an appreciation of all the factors contributing to primordia formation, in prevention of premature fruiting, or in application to unresponsive colonized blocks; and (5) meeting the changing needs of the growing shiitake by providing proper growth parameters for each stage, particularly the sensitive stages, such as growth of young primordia.