GROWING GOURMET MUSHROOMS - THE STAMETS SEMINARS

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Anyone thinking of growing gourmet mushrooms might find it worthwhile to attend one of the seminars run by Paul Stamets, founder and President of Fungi Perfecti located in Olympia, Washington, US. The seminars provide intensive training in the cultivation of exotic fungi, with an emphasis on in-house generation of spawn. The registration fee for the seminar is $500 but this is offset by the cultures provided which normally cost around $75 each; unlike strains from culture collections these are known to be capable of producing mushrooms in high yields under the appropriate conditions. All participants receive cultures of seven different gourmet and medicinal mushroom species for their own use. These cultures may be used to generate spawn.

We attended one of these workshops in

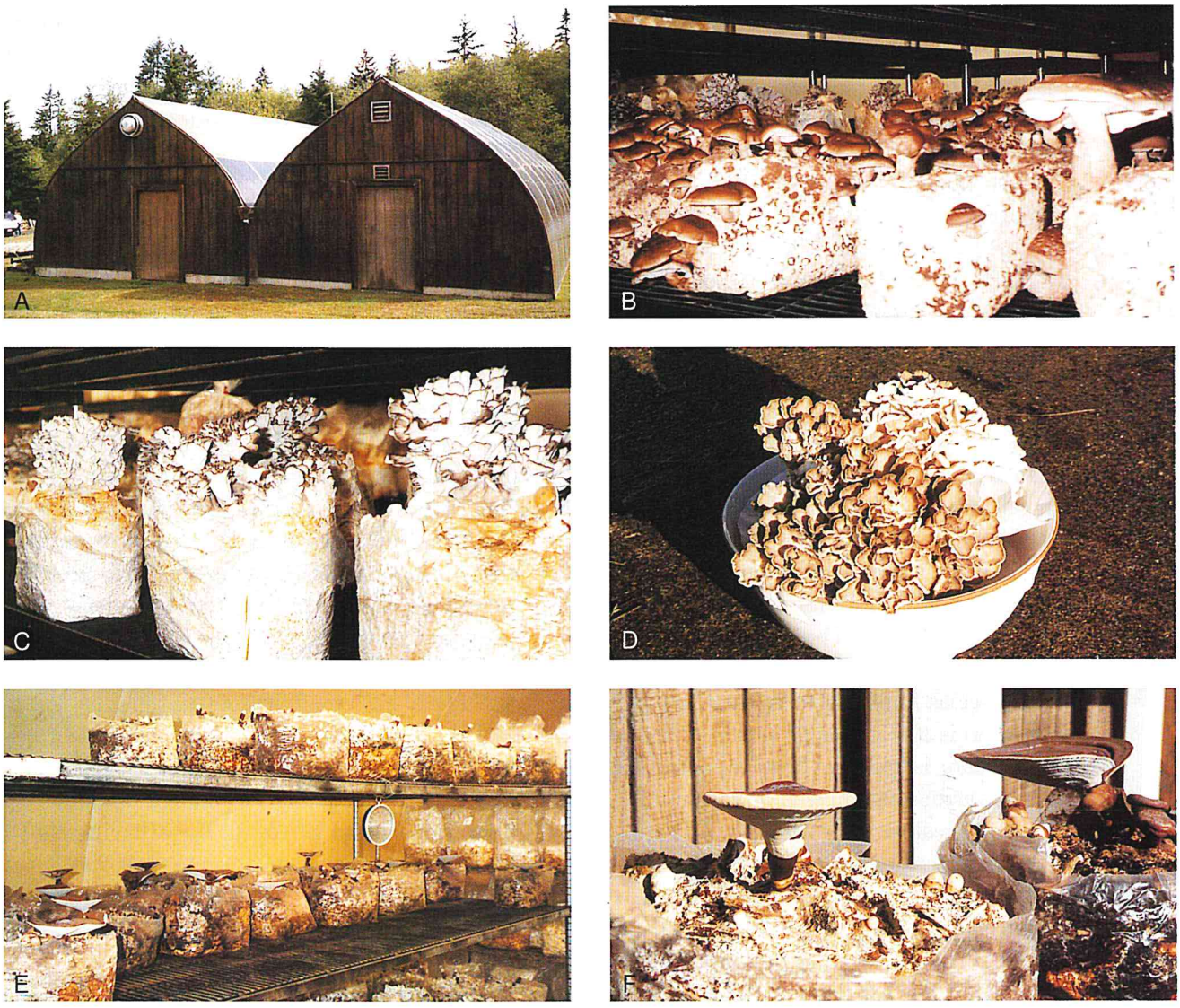

Fig 1 Mushroom cultivation at Fungi Perfecti; A Growth sheds, B Shiitake mushrooms on sawdust/wood chips media, C & D *Grifola frondosa*, E & F *Ganoderma lucidum*.

September, 1996. The two day workshop consisted of a series of talks and practical classes; the latter included cloning from fruit bodies (tissue and spores), inoculation of one gallon spawn jars containing rye grain, inoculation of fruiting bags containing sawdust and wood chips, plug spawn inoculation of logs and inoculation of pasteurized straw with oyster mushroom spawn. There were 17 participants including a couple from Venezuela. Most were hobbyists interested in setting up their own businesses based on the cultivation of exotic mushrooms. To get the most out of the course it is advisable to read one or both of the books (Stamets & Chilton, 1983; Stamets, 1993) on mushroom cultivation.

The meeting was extremely informative due to the specialised knowledge built up by Paul Stamets since he established Fungi Perfecti in 1979. His produce is certified organic; the farm obtains water from a well and if town water has to be employed we were advised to use activated charcoal filters to remove chlorine.

Fungi Perfecti (Fig 1, A) grow a wide range of exotic species on hardwood substrates including Shiitake (*Lentinula edodes*) (Fig 1, B), Maitake (*Grifola frondosa*) (Fig 1, C and D) and Reishi (*Ganoderma lucidum*) (Fig 1, E and F). Fresh alder sawdust and chips are normally employed since alder is readily available in the Pacific northwest; however, alternative species such as birch and poplar are also suitable. The sawdust/wood chips mixture, together with a nitrogen-rich supplement (e.g. oat bran) is sterilized by autoclaving for 2-3 hours prior to inoculation. Fungal mycelium quickly colonises the sawdust but wood chips are required for sustained fruiting. Each growth room can accommodate 2000-3000 bags (approx. 7 lbs each) of inoculated hardwood substrate. These mushrooms are sold in the dried form and a powdered mixture of the three species together with Zhu Ling (*Grifola umbellata*) is also produced as a customised tea. *G. umbellata* is collected from the wild since so far it has eluded attempts at cultivation.

Oyster mushrooms (*Pleurotus spp.*) are grown on pasteurized chopped straw (<4 inches in length) packed in 12 - 14 inches diam. x 8 ft plastic bags (known as column culture). Pasteurization is carried out in a hot (170°F) water bath for 1-2 hours. After cooling the spawn is mixed with the straw. Two rows of 30 bags each containing one ton of inoculated straw can be accommodated in one of the growth rooms. Holes are punched in the bags to allow gaseous exchange and for the mushrooms to emerge. The spent straw/oyster mycelium can be used as fodder for cows, chickens and pigs. Spore-induced allergy problems with oysters were briefly mentioned. Fungi Perfecti use dust masks when picking, grow the oysters as clusters and use low spore producing strains.

Paul Stamets is keen to promote the medicinal properties of exotic mushrooms such as Shiitake, Maitake and Reishi. These figure prominently in traditional Chinese and Japanese medicine and recent Japanese research has indicated that they can act as immuno-modulators in humans. Research is now being carried out in the United States and if the Japanese studies can be confirmed sales of these species could really take off. Stamets currently sells 1 lb of dried Maitake for $129.95 but is unable to produce sufficient to satisfy demand and will buy from anyone who can grow it. In answer to a question he claimed that outdoor cultivation of shiitake on logs was not worthwhile as a large-scale commercial venture in the US. Fresh shiitake mushroom prices vary dramatically with the season of the year and you cannot control the harvest time when grown outside.

One of the most memorable aspects of the course was the mushroom feast, a stir fry of Shiitake and Maitake prepared by Paul's wife, Cruz. In addition, a cauldron containing the famous 'Stamets Olympic Rainforest Mushroom Tea' was always available. There was insufficient time in two days to cover all the facets of mushroom cultivation; for example, details concerning the construction of a laboratory and growing room were not included although handouts were made available. Further details about the seminars are available from the Fungi Perfecti Web site at <http://www.fungi.com>.

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References

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