

Subterranean Shiitake

The many chalk caves in the French Loire region made the perfect natural location to cultivate mushrooms, until modern cultivation systems and international competition forced growers to leave their subterranean tunnels. However, the Tièche family decided to take the opposite route, descended into the caves and filled them with shiitake pillars.



Philippe Tièche at the entrance to the gallery.

The spectacular Loire Valley features countless châteaux and monuments, built with the local 'tuffeau', sandy chalkstone. To build these magnificent residences, complex systems of caves and tunnels were excavated to extract the stones. The result was subterranean caves that left the soil resembling gruyère cheese. These galleried spaces offered the perfect climate for mushrooms, so unsurprisingly the first commercial growing systems for the Champignon de Paris were started here back in 1810. For more than a century, mushrooms remained an expensive and exclusive French luxury item, and even when alternative methods were developed after the 1950s, the cave growers saw good financial returns for their high quality produce.

But what was once their natural advantage ultimately became the cause of the industry's demise, as wages continued to rise and it was impossible to install modern, mechanised systems in the caves. The famous Champignon de Paris was driven from the market, first by the country's northern neighbours, followed by the finishing blow dealt out by the even cheaper white mushrooms from Poland.

By Magda Verfaillie, Mycelia

Today, there are just a handful of commercial growers left in the region, and many caves formerly used for mushroom growing are deserted and empty. Some creative spirits have found alternative, tourist uses for the caves. For instance, the Bouchard family opened a 'Mushroom Museum' in a cave near Chinon, and Mr. Delalande has opened his 'Cave champignonnière des Roches' in Montrichard to the public and started a restaurant dedicated to mushrooms.

Going underground

But this article is devoted to Champivabres, the family run company owned



Béatrice picks some yellow oyster mushrooms.

by Philippe and Béatrice Tièche. Their specialism is growing so-called 'exotic mushrooms'. Growing these varieties in caves is still viable, as the extra costs are compensated for in the prices paid.

In a previous life, the Tièches lived in Switzerland, and had nothing at all to do with mushroom growing. Philippe is however, a passionate mycophile, who has collected mushrooms all his life, both in the frying pan and on photographs. Attracted by the more relaxed pace of life in France, Philippe relocated to the Sévenne in 1991, where he started growing oyster mushrooms and chestnut mushrooms. After a visit from Bruno Henri from Lentin de la Bûche, a well know French producer of pasteurised substrates, he became bewitched by the shiitake. In 1995 he built some extra tunnels and became one of Bruno's loyal customers. Right from the start, Champivabres has focussed on the Swiss market, where quality and high service levels are appreciated and valued. But the Sévenne quickly turned out not to be the ideal strategic location for this trade, so when an opportunity arose to take over a complex of caves in Montrichard in 2006, Philippe needed no persuasion. Béatrice stayed put for the time being to run the southern end of the business, while Philippe gradually started to increase production in the north. In August 2007, Béatrice and daughter Floriane



Is this a picture of the terracotta army in Xi'an, or the pillars of shiitake in the caves of Champivabres?

packed their bags to concentrate fully on Montrichard. Champivabres now employs a staff of 8.5. Floriane is responsible for logistics, Béatrice does the bookkeeping and Philippe organises the sales.

Shiitake as a visiting card

The 1.5 hectares of galleries are bare of any sophisticated climate control systems. Ventilation and fresh air supplies are regulated by simply opening and closing the entrances to the next rooms, and if this isn't sufficient, air is sucked from the neighbouring empty galleries that stretch for miles. Maximum temperatures up to 14 degrees Celsius are measured from September to December, in the other months temperatures vary between 6 and 12 degrees Celsius. Moisture management is a separate chapter. From May to September, there is an ideal situation of 80 % humidity, but between October and April there are regular peaks of 100 %, when they have to be really careful about condensation on the mushrooms, as *Pseudomonas tolasii* is always a risk. Each year they buy about 400 tons of shiitake substrate and 900 tons of oyster mushroom substrate, chiefly from Lentin de la Bûche. The pressed shiitake substrates of pasteurised straw and additives are hung vertically, three high on metal stakes, which makes harvesting easier. Oyster mushroom blocks are stacked on

the floor three rows high. The shiitakes are the visiting card of Champivabres, but they are nearly always sold in combination with oyster mushrooms, which is the basic product for most of the customers. As well as grey oyster mushrooms, limited amounts of yellow and pink oyster mushrooms are also cultivated.

The majority of production is exported to Switzerland via Champivabres' distributor Philippe Bouilloux. Other important channels are the food markets in Paris and Lyon, respectively Rungis and Jourdan-Marze.

Wide assortment

To complement his assortment, Philippe also buys varieties including *Lepista nuda* from his previously mentioned colleague André Delalande. He is also working, on express request of his customers, on expanding his own assortment. Philippe currently grows small amounts of *Agrocybe aegerita* and *Pleurotus eryngii* on pasteurised straw and horse mushrooms (*Agaricus arvensis*) on mushroom compost. He is also planning a pilot with Pom Poms (*Hericium erinaceus*), Nameko (*Pholiota nameko*), Maitake (*Grifola frondosa*) and Shimeji (*Hypsizygos tessulatus*) on sterilised substrate.

Taking a flexible approach is a sensible strategy to deal with the demanding and rapidly changing market. Niche specialists will be the only ones in West Europe who will be able to compete with the swelling volume of cheaper, imported mushrooms.

It seems that Champivabres has chosen the right path.



Agrocybe aegerita on blocks of pressed pasteurised straw.

Cultivation tips

Growers off course



Slightly too few mushrooms, irregular development, pinheads that fail to grow, disappointing quality and production. The cultivation process is OK, but not spontaneous enough. A shame, as the first three months of the year are normally the ones with the best production. Growers blame the casing soil or the compost. The wet, mild winter means casing soil producers are faced with wet, greasy raw material that they try to improve using garden peat. Composters, forced by high straw prices, use as much horse manure as possible and have modified their fermentation process accordingly. There is a delicate balance regarding the issue of structure. Sometimes the result is a soft, structure-less compost that absorbs loads of water, another time the compost has structure, but too many hard, undecomposed blades of straw, which the mycelium only grows around. This combination of a heavy casing soil and sensitive compost means that the casing material often fails to develop strong enough. The consequence is irregularly incubated casing soil, anaerobic patches in the casing layer, mycelium that has difficulty growing, mycelium fragments on top of the casing soil and pinheads that don't develop. Growers choose a lighter casing soil, cask more or resort to ruffling. All measures designed to create a more constant development pattern, with on average higher production and better quality and shelf life.

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