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HLP goes Dutch

The annual 'Hessische Pilztage' was held this year in the Dutch province of Limburg. The HLP (Hessische Landesfachgruppe Pilzanbau) is a German association for professional mushroom growers. Growers of lignivorous mushrooms in particular are members. Each year, the driving force behind the HLP, Ulrich Groos, chooses an interesting location and activity, and this year his eye was caught by Substraatbedrijf Horst, producers of substrates for lignivorous mushrooms, and John Verbruggen's company, where these substrates are prepared.

The annual general members meeting took place on 7th November in Hotel Astera in Venray. Photographs were shown here of the HLP trip to Italy (see MB nr. 16), and cultivation methods and commercial shapes of *Pleurotus eryngii* were discussed. Pennsylvania (USA) was agreed on as the destination for the next trip, with the well-known conference at Penn State University as the vehicle for the programme.

Verbruggen/Koopmans

The excursion programme on Wednesday morning was immensely popular with the attendees. At least 100 professionals from all over Europe turned up in Erp and Horst to study substrate preparation. The polyglot gathering discussed prefermentation of substrates, technical and hygienic aspects of substrate preparation, sporeless and other mushrooms.

The principle of separating the various stages of production is a good idea. Spawn, substrate and mushroom production are geographically separated virtually everywhere, in order to avoid cross-infection. But at Substraatbedrijf Horst, an additional separation is applied, by trusting the chopping and pre-fermenting of straw to John Verbruggen. Entire volumes have been written about the sense and nonsense of prefermentation. Advocates of the system are convinced that the microflora in the substrate creates a certain degree of selectivity, which gives the required lignivorous mycelium an advantage compared to weed moulds. Opponents also have a point when they argue that this process cannot be standardised as these microflora show variations caused by uncontrollable external factors. Whatever side you belong to, it appears that the tandem construction Verbruggen-Substraatbedrijf Horst works.

The visit continued in the growing rooms at Verbruggen, housing various varieties of oyster mushrooms at different stages of development. The shelves that previously held white button mushrooms now displayed neat rows of packages full of yellow and pink oyster mushrooms. Since recently, the company has also started to successfully grow sporeless oyster mushrooms.

Outside we were given an explanation



of substrate preparation. 400 tons of straw of various origin is chopped, a supplement is added and the mixture moistened as well as possible, before being spread over two long piles. A machine for kitchen and garden compost turns the piles daily, so that only aerobic processes occur. At the same time moisture is added up to 76%. This selective compost is then taken to Horst for pasteurisation, inoculation and incubation. We all made the

journey to Horst too to witness the rest of the cycle. Pasteurisation is done in classic large tunnels, which have two doors, so the filling area is separate to the inoculation area. In my opinion the foundation of the success of Substraatbedrijf Horst is not only carrying out phase I and II separately, but also the extremely high levels of hygiene during inoculation. The rectangular blocks are preferably incubated in situ in well climatized rooms,

and transported on shelves to buyers at home and abroad. Grey oyster mushrooms are wrapped in clear film, white is used for yellow and pink varieties.

Lectures

In the afternoon, four speakers took the floor. Jan Koopmans talked about the four main pillars of oyster growing: raw materials, pasteurisation, inoculation and growing. He empha-



Incubation of straw blocks at Koopmans (Substraatbedrijf Horst).



The lecturers (Koopmans, Kynast, Heslen, Verbruggen, Desrumaux) are presented with a bottle of wine by Ulrich Groos.

Photographs: Groos and Verfaillie.

Turning the straw piles at Verbruggen.

sised the importance of standardisation in each step of the process, and how essential meticulous hygiene is.

Jürgen Kynast of Pilzgarten spoke next. On his farm a large range of lignivorous mushrooms, including oyster mushrooms, are grown on sterilised substrate. He weighed up the pros and cons of growing oyster mushrooms on sterilised substrate against using pasteurised substrate. The procedure is rather more expensive, but better suited to standardisation and guarantees higher yields.

Bernard Desrumaux from the Experimental Station in Belgium, then presented us with an overview of the cultivation of a number of special compost fungi. *Agaricus arvensis* (horse mushroom) is virtually only grown in the Netherlands, on modern farms, while the cold loving *Lepista nuda* is also grown in caves in France, because of their more interesting microclimate. *Agaricus blazei* is a capricious mushroom that demands a subtropical climate, two factors which force up the production costs. *Coprinus comatus* finally, is easier to handle, but has the disadvantage of extremely short keepability properties. All these varieties give a reasonably low yield. The reason is that they are mainly grown in the same way as *Agaricus bisporus*, which is probably not ideal for them. As a result prices are high and the market limited. Further research into more profitable production methods is needed before these varieties can be grown on any large scale.

Harry Heslen of Sylvan was the final speaker with his lecture on the microbial dynamics of pasteurised substrates. He also argued in favour of producing selective substrate. Following the lectures an animated discussion started between those for and those against prefermentation. To close down the proceedings, Groos thanked the lecturers with a bottle of wine, and the participants enjoyed the chance to chat before making the, often long, journey back home.

For more photographs, see: www.mushroombusiness.com ('In Pictures').