MarginUp! Hungarian Use Case

Introductory information:

Location: Abandoned orchard close to the city of Kecskemét, Southern Great Plain, Hungary

Area: 1 ha

Climate: Semi-deserted

MarginUp! proposal: Cultivation of herbaceous and woody lignocellulosic crops for oyster mushroom cultivation and cascade use of biomass

Sida hermaphrodita planting. Photo: PILZE

Benefits:

- Biodiversity enhancement
- Circular use of biomass
- Replication potential
- Improved soil quality and productivity
- Water optimised production
- New regional business models

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Land, biodiversity, and ecosystem resilience:

With the combination of herbaceous and woody lignocellulosic crops for cascaded use in the circular oyster mushroom value chain a switch to more resilient production system is provided for crop, mushroom and animal farmers too, in a symbiotic way.

Feedstock:

PILZE substrate production.

Energy willow unrooted cuttings for planting, 2023. Photo: PILZE

Sida hermaphrodita herbaceous seedlings. Photo: PILZE

Supporting the development of the bioeconomy:

A new business model is expected to arise showing the feasibility to produce lignocellulosic biomass under marginal conditions with sustainable agro-environmental measures and for industrial cascaded application.

Stakeholder engagement:

Bio-based businesses, producers, farmers, research and innovation organisations, local and regional institutions, decision makers and potential customers will all be involved in the use case through the different stages: Crop cultivation and harvesting, oyster mushroom and oyster mushroom substrate production, animal feed and biogas processes ,and feedstock production.

Circularity and biomass cascade use:

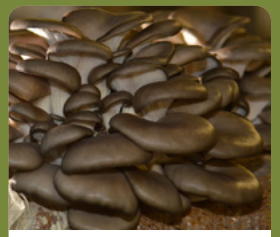
The biomass is turned into substrate to grow oyster mushroom, then the spent mushroom substrate is used as animal feed. The leftovers are treated in a biogas plant, and the digestate is placed on agricultural fields to close the nutrient loop and producing electricity and heat to dry mushrooms.

Bio-based products:

Biogas from agricultural biomass and spent mushroom substrate. Photo: PILZE

Animal feed from spent mushroom substrate (SMS). Photo: Pxhere

Oyster mushroom substrate. Photo: PILZE



Oyster mushroom. Photo: PILZE

Bio-based fertiliser for marginal land fertilization. Photo: PILZE

Replication potential:

Water stressed or scarce areas with high risk of desertification, such as regions in Southern Europe.