

Mushroom Cultivation in the Circular Economy

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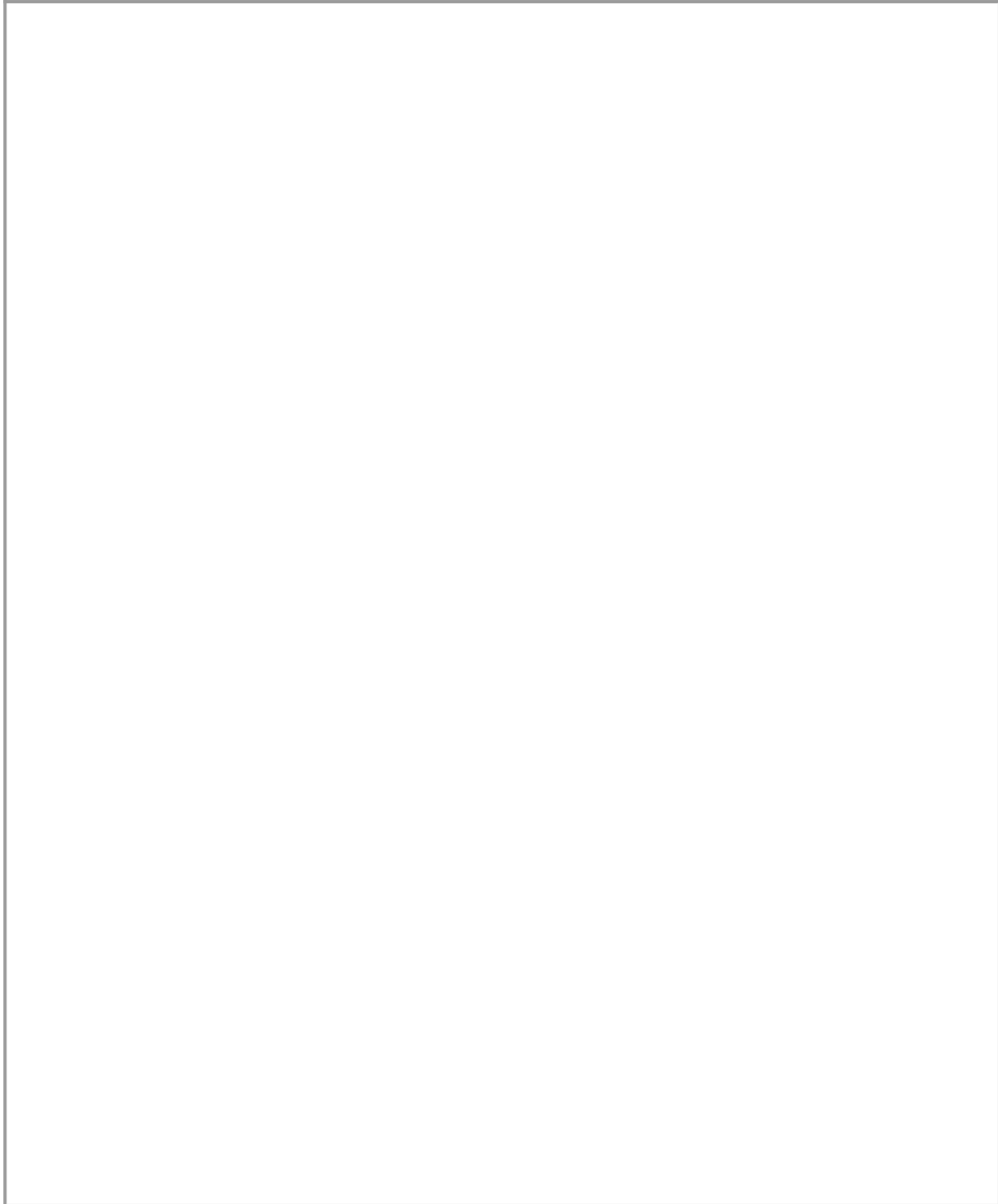
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Why did we conduct this research?

This review discusses the applications of SMS (Spent Mushroom Substrate) to promote the transition to a circular economy. SMS can be used as compost, as a substrate for other mushroom-forming fungi, as animal feed, to promote health of animals, and to produce packaging and construction materials, biofuels, and enzymes. This range of applications can make agricultural production more sustainable and efficient, especially if the CO₂ emission and heat from mushroom cultivation can be used to promote plant growth in greenhouses.

Key findings:

- Demand for mushrooms expected to increase, and consequently, increase of SMS too.
- The most circular option will depend on geographical location, being for instance dependent on the local presence of waste streams, fertilizers, and food and feed resources.
- Waste stream of greenhouses could be used for mushroom and SMS production, while the CO₂ and heat resulting from these processes could be used to stimulate plant growth in green houses. The impact can be high since doubling the atmospheric CO₂ content in greenhouses increases plant growth by 33%



Reference:

Grimm, D., & Wösten, H. A. (2018). Mushroom cultivation in the circular economy. *Applied microbiology and biotechnology*, 102(18), 7795-7803.

