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"A Sustainable Revolution in Food Production:

Perspectives and Potential of the Future Food Campus"

*\*Study on the "Future Food Campus" (FFC) - evaluation of the environmental potential and analysis of economic opportunities for the development of a circular economy model in the new food production powered by green energy.*

Is "net-negative" food production possible? The study on the "Future Food Campus" examines an industrial scale plant for the joint production of cultured meat and products from precision fermentation and vertical farming. The plant is powered by green energy and could set new standards for sustainable production methods.

Foodworks e.V. emerged from the Innovation Committee of the Hamburg Chamber of Commerce and has set itself the task of creating climate-friendly production for new foods and vertical farming. Supported by funding from the Hamburg Ministry of Economics and Innovation, the interdisciplinary team has set out to design and build a food production factory to support start-ups and established food companies on their way to market with a model waste-to-energy technology. This involves processing food waste and generating energy for food production at the same time.

**The results show a path to CO2-negative food production**

The detailed study is based on Life Cycle Assessments from GEA, one of the leading engineering developers of new food technologies. It also engaged experts in vertical farming, incorporated Carboncycle's waste-to-energy model and conducted a comprehensive environmental analysis with Smarthoods to show the economic and environmental benefits of this holistic approach.

The economic viability and environmental impact analysis provides the first insight into how the FFC concept could be implemented in a sustainable way, making an important contribution toward the transition to eco-friendly food production to combat the global climate crisis. The study shows that food can be produced not only CO2-neutral but even CO2-negative by integrating different systems, including innovative waste-to-energy production. Despite the high investment costs, production would be profitable and offer enormous economic opportunities.

**Joint efforts for global competitiveness**

Companies, investors and politicians must step up their efforts and work together to keep pace with global developments. From an economic and ecological perspective, FFC offers enormous potential for a sustainable transformation of food production, both locally and globally. However, the relevant players in Germany are not yet geared towards realizing this potential. While countries such as the USA, Singapore, Israel and the United Arab Emirates are investing massively in these new food production technologies and building corresponding production facilities, Germany is still cautious.

With its strong industrial base in the field of food production, its high level of process and biotechnological expertise and its leading position in the field of green energy, Germany is ideally placed to realize the technically sophisticated FFC concept as an innovator with "German Engineering" in close cooperation with other international partners and to play a leading role in this future market.

**Great opportunities for Hamburg as a driver of ecological and economic change**

The sustainable transformation of food production also offers great opportunities for Hamburg if the FFC concept is implemented. Hamburg has set itself the goal of becoming CO2-neutral by 2050. The analysis has shown that the implementation of the FFC can make a significant contribution to this. The sustainable production of food in the city would also be a key element for sustainability and food self-sufficiency in urban areas and a global showcase model. The implementation of the FFC concept would be an important contribution to the sustainable transformation of the food industry in Hamburg and a central innovation project for the newly emerging Food Cluster. New Food is also one of the fields of innovation that the Hamburg Chamber of Commerce has identified as having future potential in its Strategy 2040. The FFC would fit ideally into the port transformation concept, which aims to use space for innovative production processes in the circular economy, among other things.

**Time for action: Collaboration for change in food production**

The path to implementing this integrated, sustainable food production ecosystem requires more than just scientific skills and entrepreneurial spirit. It requires collective perseverance, multidisciplinary teams, global funding mechanisms, government support and an informed society. Collaboration between different sectors such as the sanitation, water, agriculture, food and energy industries is particularly important to realize circular economy strategies that promote more hyperlocal solutions. Shared production infrastructures will support start-ups on their path to market readiness and provide more opportunities for the food sector to produce without a carbon footprint. From science and research to scientists and politicians, this revolution can expand the economy and attract talent to the city. There is also a huge opportunity to shape the global food industry by offering a net-zero production model so that companies looking to reduce their carbon emissions and ESG regulations can do so with a resilient holistic strategy.

ABOUT US

The Future Food Campus (FFC) is a project of Foodworks e.V. led by Eva Keretic, supported by national and international experts in new food technologies, the Hamburg Chamber of Commerce, the Food Cluster Hamburg (BWI) as well as several public funding (EU Interreg Baltic Region - KISMET- Enabling Sustainable Food Environments and The Sustainable Urban Delta Project) and has already been presented at several international New Food, Agtech and CEA Indoor Farming conferences. Foodworks published its financial analysis and circular design analysis, a collaboration with GEA, various vertical farming experts, Carboncycle, and Smarthoods, in May 2024.

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