



in|FARMING®



1 Fraunhofer inHaus-Center, Duisburg

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HARVESTING ON URBAN ROOFTOPS

DEMO CENTER at Fraunhofer inHaus

Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT

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Modern agriculture is resource-intensive: averaged across global data, agriculture requires an area which approximately corresponds to the size of South America, consuming about 70 % of the available drinking water. In addition, it is the largest cause of water pollution and requires at least 20 % of world-wide fuel consumption.

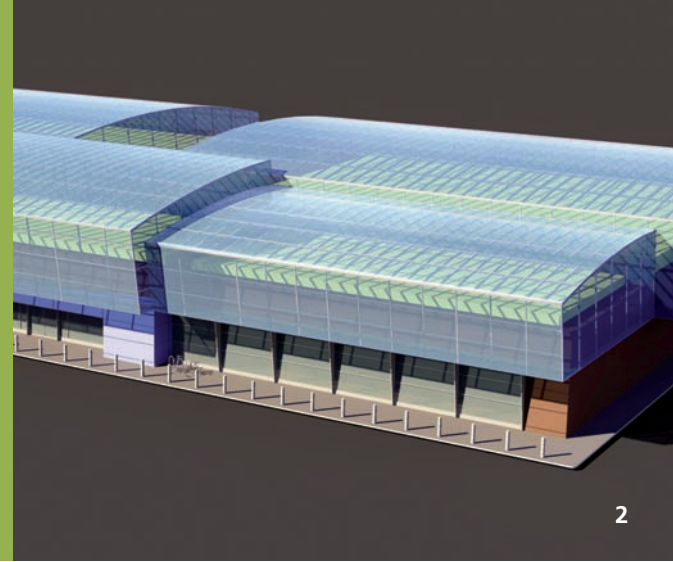
The Fraunhofer-inHaus-Center is the leading innovation center for intelligent room and building systems in Europe. In collaboration with BrightFarm Systems, the center is developing a prototype of the so-called "Rooftop Farming", urban agriculture located on the rooftops of buildings.

Keywords

- Building-integrated agriculture
- Vertical farms
- Drip watering, aeroponics and hydroculture
- Process water usage
- Building waste heat utilization

Industries

- Architecture and building
- Agricultural economics
- Water and energy supply
- Facility management
- Biotechnology



1+2 Vision inFARMING®

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Motivation

- Cultivated areas in special greenhouses integrated into urban areas can provide an environmentally sound and surface-efficient solution.
- Our goal is to demonstrate and adapt inFARMING® in Germany and Europe and to optimize the technology and cultivation processes.
- inFARMING® permits
 - the reduction of problems in connection with the exploitation of resources
 - the reduction of transport costs, and
 - the production and supply of fresher products directly to the consumer.
- Pilot projects have been installed in the USA with great success. Commercial applications are in development at various locations (including New York, Los Angeles, Dubai, Shanghai).

Objectives

- Further development of vertical integrated greenhouses (agricultural facades integrated in buildings)
- Reduction of water consumption
- Optimized fertilizer use
- Less transport and emissions with urban logistics concepts
- Land and energy economy using synergies with integrated control concepts
- Opening markets and increasing acceptance with studies
- Quantification of environmental burden and relief by lifecycle assessment (e.g. greenhouse gas accounts)
- Improvement of internal processes and assurance of successful project implementation with sustainability aspects

Current Partner Consortium

- Fraunhofer UMSICHT, Oberhausen
- BrightFarm Systems, New York
- i+o Industrieplanung + Organisation GmbH & Co. KG, Heidelberg