

# Sustainable concepts for plant production

Building-integrated system solutions



With the R&D platform inFARMING®, we are driving forward the integration of agriculture in cities and metropolitan areas.

To this end, we develop materials, specific lighting strategies and automation solutions for nutrients, water and energy. We carry out feasibility and implementation studies as well as acceptance and participation studies.

Plant production systems that can be integrated into intensive systems at the location where they are needed, regardless of location and plant variety, can be of great interest to many industries. Wherever there is a need for high and consistent plant quality all year round, regardless of the environmental conditions, such systems will be increasingly used in the future.

[www.infarming.de](http://www.infarming.de)

## Industrial sectors

- Architecture and construction
- Agriculture
- Water and energy supply
- Facility Management
- Pharmaceutical, cosmetics and food industry

## Keywords

- Building-integrated agriculture
- Vertical farms
- Hydroponics and aeroponics
- Process water utilization
- Utilization of waste heat
- LED lighting
- Automation



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## Motivation

### Advantages of controlled plant production

- Higher yields (e. g. through year-round production)
- Plants with higher quality (e. g. secondary metabolites)
- Consistently high and predictable quality
- Minimization of fluctuations in production (climate, weather, seasons)
- Higher quality without chemicals
- Decentralized production at the place of processing

## Goals

- Further development of building-integrated plant production
- Optimized fertilizer production and use
- Reduced transport and emissions through urban logistics concepts
- Agriculture and energy industry – utilizing synergies through integrated control concepts
- Quantification of environmental impact and relief through life cycle assessment
- Improving internal processes and ensuring successful project implementation from a sustainability perspective

## Our services

- Supporting projects for building-integrated plant production
- Development of specific lighting scenarios for plant varieties and dynamic lighting systems
- Development of functionalized materials and polymer formulations
- Development of building blocks and interfaces for the use of secondary resources as fertilizers
- Market and feasibility studies

## References

- ALTMARKTgarten Oberhausen (support and construction of a building-integrated rooftop greenhouse)
- Feasibility study inFARMING® for food retailers (analysis of implementation for various expansion sizes, including cost analysis)
- Feasibility study on vertical farming for the city of Düsseldorf (analysis of an implementation for the Carlsplatz site near Düsseldorf's old town)
- Feasibility study food industry (analysis of the production possibilities of renewable raw materials in vertical farming)

*The ALTMARKTgarten in Oberhausen is the first inFARMING® project in Germany.*

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