Contributions of Local Farming to Urban Sustainability in the Northeast United States - DTU Orbit (19/04/2019)

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Food consumption is an important contributor to a city’s environmental impacts (carbon emissions, land occupation, water use, etc.) Urban farming (UF) has been advocated as a means to increase urban sustainability by reducing food-related transport and tapping into local resources. Taking Boston as an illustrative Northeast U.S. city, we developed a novel method to estimate sub-urban, food-borne carbon and land footprints using multiregion input-output modeling and nutritional surveys. Computer simulations utilizing primary data explored UF’s ability to reduce these footprints using select farming technologies, building on previous city-scale UF assessments which have hitherto been dependent on proxy data for UF. We found that UF generated meagre food-related carbon footprint reductions (1.1–2.9% of baseline 2211 kg CO₂ equivalents/capita/annum) and land occupation increases (<1% of baseline 9000 m² land occupation/capita/annum) under optimal production scenarios, informing future evidence-based urban design and policy crafting in the region.

Notwithstanding UF’s marginal environmental gains, UF could help Boston meet national nutritional guidelines for vegetable intake, generate an estimated $160 million U.S. in revenue to growers and act as a pedagogical and community building tool, though these benefits would hinge on large-scale UF proliferation, likely undergirded by environmental remediation of marginal lands in the city.

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