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Urban agriculture as a new concept of food production: Opportunities and limits

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Today, one of the most promising methods of agriculture is urban food production. Urban farming is not a new concept, but it is now more important than ever with climate change and the rise in population and urbanization. New technologies and methods of farming in urban environments are being rapidly developed to supplement the current food supply in cities and encourage urban greening to improve the environment. Urban farming can produce higher yields of crops for the same amount of space than rural farming with its focus on high-efficiency, eliminates the need for most of the economic and environmental costs of transportation and preservation required for industrial rural farming, and also grants access to healthier food for low-income areas. Limitations to urban agriculture include poor quality of soil and topsoil (due to litter and pollution), scarcity of clean irrigation water, especially in dry seasons and the typical pests, weeds, and diseases that impact agriculture anywhere and the scarcity of space. Contaminants particularly restrictive to the use of urban soils include the heavy metals lead, cadmium, and arsenic, as they are widely distributed and/or have especially detrimental effects. Their concentration consists of natural (bedrock sourced) and anthropogenic components, although anthropogenic influences tend to be substantially stronger in urban settings. In general, heavy metals either can serve as essential trace elements or have limited physiological value. They are often toxic in higher concentrations as they are persistent in soils (either very slowly degradable, or not at all) and tend to accumulate in an animal, human, and plant tissues. These conditions are a particular challenge for organic farming in the city. All of these factors are a challenge for ecological production in the city. The contribution shows opportunities and limits of organic gardening/farming in the urban ecosystem and gives examples from Berlin, Havana and Cape Town.

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