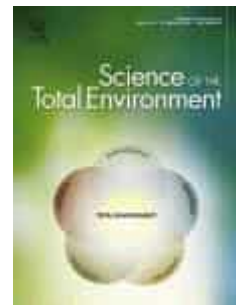


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Feeding a city – Leicester as a case study of the importance of allotments for horticultural production in the UK

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Highlights

- Urban agriculture provides important ecosystem services to people living in cities.
- Allotment gardening in 1.5% land within a city provides fresh produce for 3% of population.
- Crop yields achieved by own-growers were similar to commercial crop yields.
- Availability of land for own-growing has significantly declined since the 1950s.
- Urban food security could be increased by providing more allotment land.

Abstract

The process of urbanization has detached a large proportion of the global population from involvement with food production. However, there has been a resurgence in interest in urban agriculture and there is widespread recognition by policy-makers of its potential contribution to food security. Despite this, there is little data on urban agricultural production by non-commercial small-scale growers. We combine citizen science data for self-provisioning crop

yields with field-mapping and GIS-based analysis of allotments in Leicester, UK, to provide an estimate of allotment fruit and vegetable production at a city-scale. In addition, we examine city-scale changes in allotment land provision on potential crop production over the past century. The average area of individual allotment plots used to grow crops was 52%. Per unit area yields for the majority of crops grown in allotments were similar to those of UK commercial horticulture. We estimate city-wide allotment production of >1200 t of fruit and vegetables and 200 t of potatoes per annum, equivalent to feeding >8500 people. If the 13% of plots that are completely uncultivated were used this could increase production to >1400 t per annum, feeding ~10,000 people, however this production may not be located in areas where there is greatest need for increased access to fresh fruits and vegetables. The citywide contribution of allotment cultivation peaked in the 1950s when 475 ha of land was allotments, compared to 97 ha currently. This suggests a decline from >45,000 to <10,000 of people fed per annum. We demonstrate that urban allotments make a small but important contribution to the fruit and vegetable diet of a UK city. However, further urban population expansion will exert increasing development pressure on allotment land. Policy-makers should both protect allotments within cities, and embed urban agricultural land within future developments to improve local food security.

Graphical abstract

