

EUROPEAN STUDY SHOWS THAT ALLOTMENT GARDENS COULD MITIGATE URBAN HEAT ISLANDS IMPACT IN CITIES

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In September 2026 the Directorate-General for Environment of the [European Commission published an article highlighting that prioritising allotments in areas of high population density could mitigate urban heat islands.](#)

[The article presents the result of the Study on urban agriculture in Europe showing that allotments in European Functional Areas are crucial for mitigating urban heat.](#) On average, each allotment cools 3.59 ha, surpassing its mean size of 3.41 ha, with a cooling intensity of 2.84 °C. Allotments provide cooling benefits to approximately 4.1 million people, with each km² of allotments benefiting an average of 8221 individuals.

The article highlights that the inhabitants of European cities are increasingly experiencing the impacts of climate change. Urban design choices impact the phenomenon of urban heat islands (UHI) – higher temperatures in urban areas compared with surrounding rural zones. European cities are particularly vulnerable to UHI due to high population density, infrastructure concentration, an ageing population and increasing heatwave frequency and intensity. There is therefore an urgent need to mitigate UHIs through [urban planning policy](#) and [climate adaptation strategies](#). The cooling role of [blue-green infrastructure](#) (urban networks of waterways and green spaces) has been demonstrated, but the role of urban agriculture, and allotments in particular, is less well studied.

[The recent large-scale spatial Study of urban agriculture in Europe](#) explored the cooling impacts of allotments in European cities. To better understand allotments' impacts, the researchers looked at the area cooled, maximum cooling distance and intensity, the number of people benefitting from cooling, the difference between urban and peri-urban agriculture, and other spatial factors.

The Study area comprised 682 of the 929 European [Functional Urban Areas](#) (FUAs, which each comprise a city and its commuting zone) and used data from the 2020 and 2021 Urban Audits of quality of life indicators developed by Eurostat and local and national authorities (known as '[City data collection](#)'). Only FUAs containing allotments and meeting certain thermal data criteria were included.

The article describes the Study methodology, which has led to the following main conclusions:

- allotments in Europe are estimated to cool the area inhabited by approximately 4.1 million people;



- each square kilometre of allotments cools an estimated average of 8,221 people;
- on average, the area cooled is approximately 2.8 times the area of the allotment;
- the cooling effect of allotments is felt a maximum of 106.8 metres away;
- within the cooled area, temperatures are reduced by 2.84°C; and urban agriculture has a greater cooling efficiency (23%) than agriculture on the outskirts of cities ('peri-urban agriculture'). Cooling efficiency was calculated as the ratio of 'cooled area' to 'allotment area'.

Only 5% of allotments within FUAs were found in areas with the highest heat risk. 43% were integrated into other blue-green infrastructure that could enhance the cooling effect. However, standalone allotments showed a cooling efficiency similar to allotments integrated with other blue-green infrastructure.

The Study underlines that while allotments are primarily concentrated in Central and Eastern Europe, with Germany leading in absolute cooling beneficiaries, cities in the UK, Belgium, the Netherlands and Luxembourg, western Germany, northern Italy, and parts of Spain have the highest cooling efficiency due to a higher proportion of allotments near densely populated areas and smaller average allotment sizes. This indicates that key actions should focus on ensuring strong integration with the dense built-up areas of city centres.

The authors recommend that spatial policies should prioritise locating smaller allotments in city centres, to enhance heat resilience in densely populated cities and their surrounding commuting zones. The authors propose a set of indicators that could be used to inform policymaking, to identify where allotments would contribute most to UHI mitigation.

The findings also emphasize the importance of promoting allotments as a multifunctional urban agriculture strategy, not only for cooling but also for delivering additional ecosystem services such as food production, biodiversity enhancement, and stormwater management. In the face of intensifying climate change and urbanisation pressures, targeted policies to develop and optimise allotment spaces could substantially enhance urban resilience against the negative impacts of urban heat islands.

The European Commission's promotion of urban gardens to counteract the urban heat island effect contributes to the numerous international initiatives aimed at making cities greener, more sustainable, and more resilient to climate change.

To know more

[News in environment.ec.europa.eu](https://news.in.environment.ec.europa.eu)

[Study on urban agriculture in Europe in sciencedirect.com](https://www.sciencedirect.com/science/article/pii/S0167636920300000)

[FAO.org Green cities initiative](https://www.fao.org/green-cities-initiative/)

[UNECE Urban resilience through nature](https://www.unec.org/urban-resilience-through-nature/)

[The Role of Urban Gardens in Fighting Climate Change](https://www.unece.org/urban-resilience-through-nature/)

[UNHABITAT.org Greener cities partnership](https://www.unhabitat.org/greener-cities-partnership/)



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