

# Smart gardens to help save Earth's soil

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Credit: AI-generated image ([disclaimer](#))

Smartphone users can now collect important data from their gardens to help the battle against climate change and solve the planet's hunger crisis.

Climate change-induced weather events and intensive agricultural practices have led to a global [soil](#) crisis that will exacerbate worldwide hunger and [food shortages](#), an issue that could potentially affect

approximately 1.3 billion people, as analysed in a recent publication. Given that around 95 % of human sustenance is grown from soil, the Food and Agriculture Organization has warned the scientific community that should farming continue with a business-as-usual approach, which results in roughly 60 acres of fertile land lost every minute, the planet's top soil will have fully degraded within 60 years, effectively ending the process of harvesting.

To address the issue, the University of Dundee is spearheading an innovative project aptly named Grow Observatory, or GROW for short, that has established an all-inclusive platform to stimulate soil conservation and advance sustainable [food](#) growth methods across Europe.

## **Growing an environmental conscience**

GROW encourages its users to install free novel detectors in the soil of their gardens, to gather vital information on soil quality. This information will be used to verify data that is also provided by satellites, enhancing the overall validity of the intelligence gathered.

Monitoring is not limited to [soil quality](#) however. The sensor, which is designed to resemble a Y-shaped stick and is camouflaged appropriately so as not to appear invasive, also gathers statistics that allow citizen scientists to forecast and prepare for extreme weather like floods and heatwaves.

Soil moisture levels are also measured to assess the dryness or dampness levels of the ground. Light conditions and atmospheric temperature are quantified too, thereby creating a comprehensive list of parameters that can be utilised for efficient and sustainable environmental management at a local, regional, continental and eventually global scale.

## Community engagement

The GROW community encompasses thousands of individuals, and anyone who has a garden and is interested in contributing to the effort can apply for a sensor through the project website. Perhaps one of its most attractive features lies in the simplicity of the process: all the information gathered by the garden sensors is collected on a smartphone app that then transfers and collects the data online, in a central database that can be accessed by the GROW community.

Approximately 10 countries from regions across Europe are engaged in a collective effort to identify the most sustainable solutions to three general challenges, which Dr. Deborah Long posed as follows in a recent 'BBC' article: "How do we grow more food, how do we grow healthier food, how do we grow and access food locally?"

To support and supplement the project's vision, three citizen science massive open online courses are offered for free at FutureLearn, in association with the University of Dundee. Coupled with the established public platform and open-to-all soil database, the GROW Observatory provides amateur scientists with the opportunity to significantly contribute to climate change mitigation and soil protection, right from the comfort of their own [garden](#).

**More information:** Andrea Koch et al. Soil Security: Solving the Global Soil Crisis, *Global Policy* (2013). [DOI: 10.1111/1758-5899.12096](#)

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