# Heavy metal contamination affects one sixth of global cropland, risking health of 1.4 billion people



Researchers have estimated that approximately one sixth of the world’s cropland is contaminated by toxic heavy metals, affecting the health and safety of up to 1.4 billion people who live in high-risk areas worldwide. This contamination, which spans roughly 242 million hectares or 14 to 17% of global cropland, involves toxic metals such as arsenic, cadmium, cobalt, chromium, copper, nickel, and lead at levels exceeding accepted agricultural and human health safety thresholds.

The comprehensive study compiled data from over 1,000 regional research studies across the globe and employed machine learning technologies to map the extent of heavy metal pollution in soil. The findings revealed widespread contamination that poses significant risks to ecosystems, public health, and food security. These toxic metals not only reduce crop yields but can also jeopardise water quality and food safety due to their tendency to bioaccumulate in farm animals.

Dr Liz Rylott, a senior lecturer in biology at the University of York who was not involved in the study, described the situation as deeply concerning. Speaking to The Guardian, she said, “These findings reveal the deeply worrying extent to which these natural poisons are polluting our soils, entering our food and water, and affecting our health and our environment. Often collectively called heavy metals, these elements cause a range of devastating health problems, including skin lesions, reduced nerve and organ functions, and cancers.”

The origin of toxic metal pollution in soil is a combination of natural factors and human activities. Notably, once introduced, these contaminants can persist in soils for decades. The study highlights that cadmium, in particular, is the most widespread toxic metal, with especially high concentrations found in regions of South and East Asia, parts of the Middle East, and Africa.

The increasing global demand for critical metals, essential for technology and green infrastructure such as wind turbines, electric vehicle batteries, and photovoltaic panels, threatens to exacerbate this pollution. Dr Rylott emphasised this risk, noting, “Our drive for technology-critical metals to build the green infrastructure required to tackle climate change will exacerbate this pollution.”

Combining the contamination data with global population distribution, researchers estimate that between 900 million and 1.4 billion people reside in areas deemed high-risk due to heavy metal soil contamination. Dr Rylott further explained the international scope of this issue, stating, “This map illustrates how metal pollution is independent of human borders; to tackle this problem, countries will have to work together. Much of the pollution is in low- and middle-income countries, where communities are directly affected, exacerbating poverty. The effect of these contaminated crops entering global food networks is not as clear.”

The findings underscore the extensive and intricate challenges posed by heavy metal contamination in soils globally, affecting human health, agriculture, and the environment across many countries and communities.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.eurasiareview.com/18042025-up-to-17-of-global-cropland-contaminated-by-toxic-heavy-metal-pollution/> - This article supports the claim that approximately 14 to 17% of global cropland is contaminated by toxic heavy metals, affecting up to 1.4 billion people. It also highlights the risks these metals pose to ecosystems and human health.
* <https://www.sciencemediacentre.org/expert-reaction-to-study-looking-at-the-global-distribution-of-cropland-contaminated-by-heavy-metal-pollution/> - This page provides expert reactions to a study on global soil contamination by toxic metals, corroborating the significant risks to human health and ecosystems. It also mentions the need for targeted action to address this issue.
* <https://sciencemediacentre.es/en/15-worlds-crops-could-be-contaminated-heavy-metals> - This article mentions that up to 15% of the world's crops could be contaminated by heavy metals, affecting large populations. It aligns with the notion that heavy metal contamination in soil poses significant risks.
* <https://english.elpais.com/science-tech/2025-04-17/one-sixth-of-the-planets-cropland-has-toxic-levels-of-one-or-more-metals.html> - This article discusses how about one-sixth of the world's cropland contains toxic levels of heavy metals, affecting areas globally. It highlights cadmium as a particularly widespread contaminant.
* <https://envirotecmagazine.com/2025/04/15/a-fifth-of-global-farmland-contaminated-by-toxic-metals-says-study/> - This article reports that nearly a fifth of global farmland is contaminated by toxic metals, posing threats to food security, public health, and ecosystems. It emphasizes the urgent need for international action.