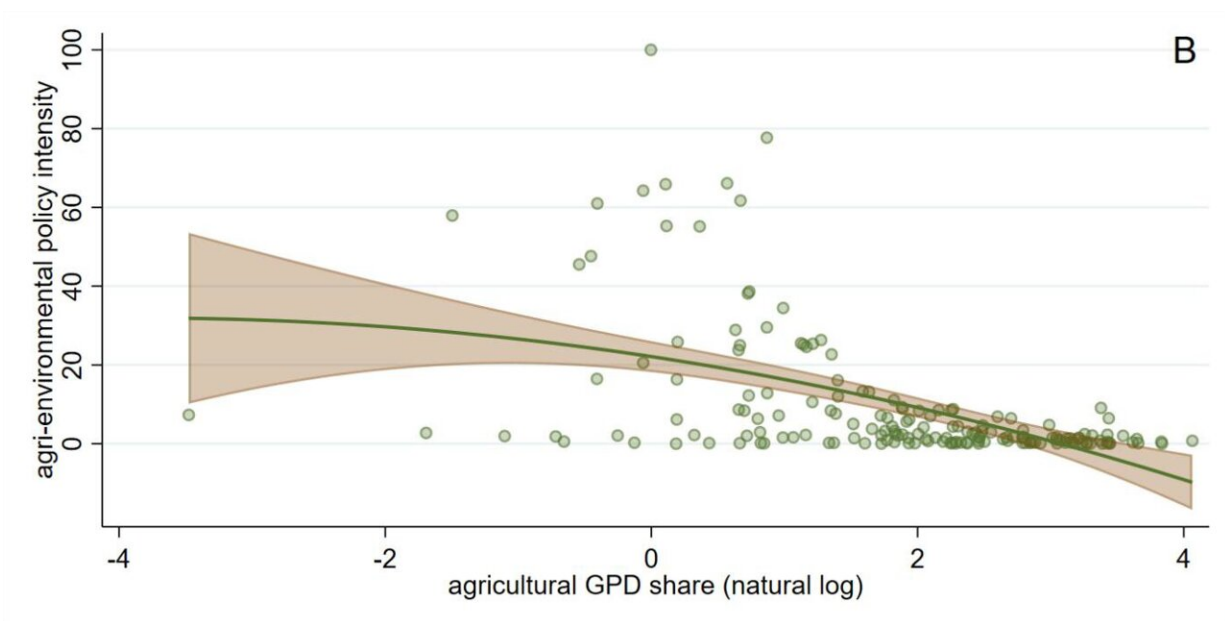


# Researchers publish dataset of over 6,000 agri-environmental policies from all over the world

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The charts show the relationship between the percentage of a country's gross domestic product generated by the agriculture industry and how many national agri-environmental policies it has. Richer countries tend to introduce more sets of agri-environmental regulations. Credit: Chart: Wuepper et al., Nature Food, 2024

There can be no analysis without data. In this spirit, researchers from the University of Bonn and the Swiss Federal Institution of Technology

(ETH) Zurich have published a database containing over 6,000 agri-environmental policies, thus enabling their peers as well as policymakers and businesses to seek answers to all manner of different questions.

The researchers have used two examples to demonstrate how this can be done: how a country's economic development is linked to its adoption of agri-environmental policies and how such policies impact [soil](#) erosion.

Their study has now been published in *Nature Food*.

Although agriculture is vital for our survival and well-being, it is also responsible for significant greenhouse gas emissions, biodiversity loss and soil degradation. Countries are therefore adopting all manner of different policies to make agriculture sustainable, from regulations to paying for agri-environmental services.

Every year, [new laws](#), programs, and schemes are introduced all over the world while others are abolished, making it hard to keep track of developments. This is a problem for researchers and policy decision-makers alike: How are they to go about making comparisons? How can they tell which measures work in which circumstances?

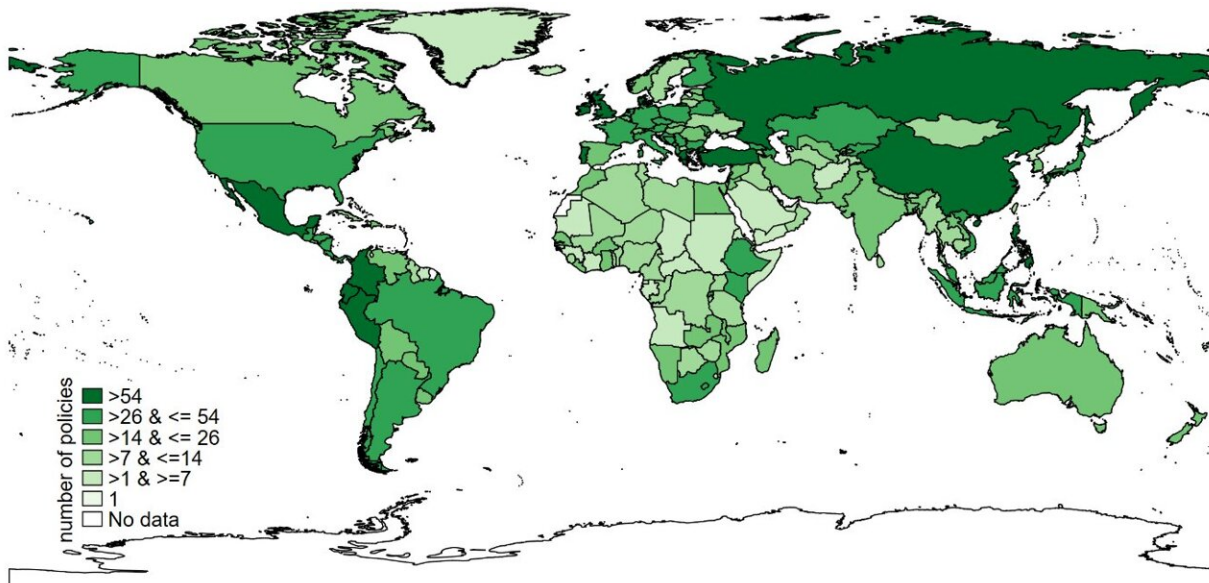
Together with colleagues at ETH Zurich, Professor David Wuepper from the Institute for Food and Resource Economics at the University of Bonn has now put together an extensive, easy-to-use database containing 6,124 policies, from over 200 countries, that were adopted between 1960 and 2022.

In their work, the team focused on measures meeting certain criteria.

"First and foremost, the measure has to be relevant in some way to agriculture, such as [land use](#), nitrogen fertilizers or pesticides. But [forest conservation](#) is included too because it's linked to agriculture in many

countries," explains Wuepper, who is also a member of the PhenoRob Cluster of Excellence at the University of Bonn. The measures also have to have national significance, meaning that they cannot be focused too strongly on the local level, for example. New thematic areas can be added to the database at any time.

"We deliberately gave it a modular structure so we can keep on expanding it," Wuepper adds.



The chart shows the number of national agri-environmental policies in each country. It can be seen that there are a particularly large number of agri-environmental policies in the EU member states. Credit: Chart: Wuepper et al., Nature Food, 2024.

## Old question meets new data

Wuepper and his co-authors were quick to use their database to shine

new light on an old but contentious question: How does a country's economic development tie in with its adoption of agri-environmental policies?

"You might expect higher-income countries to implement a larger number of eco-friendly measures because the environment is becoming increasingly important in relative terms on the policy front," Wuepper explains.

Thanks to his database, he has now been able to confirm that this is indeed the case. "We've shown that richer countries actually do introduce more measures, generally speaking," he says.

Here too, however, it is the exceptions that prove the rule. "This trend doesn't apply across the board. For instance, the Middle Eastern have relatively few agri-environmental policies in place given their income level. This demonstrates that countries need to make an active effort to implement sustainable policies and that it won't happen by itself," Wuepper notes.

What these policies then actually achieve, however, is another question entirely. "But this is also something that can—and should—be investigated with the help of the database," Wuepper says, and in fact an initial analysis of this kind is included in the article that has been published.

## **National policies help fight the problem of soil erosion**

The database helped Wuepper answer a question that had been on his mind for some time: in a [previous research project](#) at ETH Zürich, he had studied what impact countries have on soil erosion.

"Comparing levels of soil erosion along national borders showed that

countries exert significant influence," Wuepper reveals. "At the time, we were able to demonstrate a link to agriculture, and we also thought that national policies might be an influencing factor. However, we couldn't look into it because we didn't have the data on the countries' relevant policies to compare on a global scale."

Armed with their new policy database, the researchers have now been able to investigate the extent to which this significant influence that countries exert on global erosion can be explained by their policies. They have found that national soil management policies account for at least 43 percent of a country's impact on soil erosion.

The [database](#) is accessible to the general public at [this link](#).

**More information:** Countries' Agri-Environmental Policies from 1960 to 2022, *Nature Food* (2024). [DOI: 10.1038/s43016-024-00945-8](https://doi.org/10.1038/s43016-024-00945-8)

Provided by University of Bonn

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