

# Changing climate will lead to devastating loss of phosphorus from soil

April 15 2009

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Crop growth, drinking water and recreational water sports could all be adversely affected if predicted changes in rainfall patterns over the coming years prove true, according to research published this month in *Biology and Fertility of Soils*.

Scientists from Biotechnology and Biological Sciences Research Council (BBSRC)-funded North Wyke Research have found for the first time that the rate at which a dried [soil](#) is rewetted impacts on the amount of phosphorus lost from the soil into surface [water](#) and subsequently into the surrounding environment.

Dr Martin Blackwell who is one of the project leaders said: "Our preliminary results show that despite best efforts, the changing climate may limit our ability to mitigate phosphorus losses at certain times of the year, especially summer.

"This is really worrying because high phosphorus concentrations in surface waters can lead to [harmful algal blooms](#) which can be toxic, cause lack of oxygen during their decay and disrupt food webs. This can also affect the quality of water for drinking and result in the closure of recreational water sport facilities."

Under laboratory conditions Dr Blackwell and his team re-wet dried samples of UK grassland soil over different time periods, ranging from two hours to 24 hours using the same quantity of water. The leachate - water that has washed through the soil - was then analysed for

phosphorus. The study showed that the rate at which a dried soil is rewetted affects the concentration and forms of phosphorus lost in leachate which could potentially contaminate surface water bodies (e.g. [rivers](#) and lakes).

The current research looked at only one soil type so it is not yet known whether other soil types would react in the same way. This is what Dr Blackwell and his team will look at next.

Commenting on the findings, Prof Douglas Kell BBSRC Chief Executive said: "If we are to ensure safe and sufficient food and water supplies in the future then we must be absolutely clear on the challenges that a [changing climate](#) presents us. Having this information now means that we can be prepared to deal with the consequences of altered rainfall patterns at a local, national and international level to secure harvests and protect water supplies."

More information: This work is published in the journal *Biology and Fertility of Soils*. To view the paper online visit [www.springerlink.com/content/m ... ede4a9534b32π=1](http://www.springerlink.com/content/m...ede4a9534b32π=1)

Source: Biotechnology and Biological Sciences Research Council ([news : web](#))

Citation: Changing climate will lead to devastating loss of phosphorus from soil (2009, April 15) retrieved 23 April 2024 from <https://phys.org/news/2009-04-climate-devastating-loss-phosphorus-soil.html>

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