



Hi All,

I have received a number of comments on the 'International Decade of Soils'. It was pointed out to me that this year is the 'International Year of Pulses'. Next year will be the 'International Year of Sustainable Tourism for Development' If you are interested in the Whole International Year of..." see

<http://www.un.org/en/sections/observances/international-years/>

Looking down the list I do remember 'International Year of Deserts and Desertification' 2006. Much to my shame I have no recollection of the '[International Year of the Potato](#)' 2008. The potato shared the limelight with the 'International Year of Sanitation' also 2008. Ironically these years seem to be bought together in the 'International Year of Soils' 2015 by the Peter Weir film 'The Martian'.

Regards

Brian



More action required to protect soil in the city

Industrial activity, pollution and exploitation are degrading the quality of soils located in and around our cities, according to a report released today by the European Environment Agency (EEA). Efficient use of soils supported by better planning and policy making in urban areas is needed to make sure that this valuable natural resource helps our cities remain liveable and able to deal with challenges like climate change.

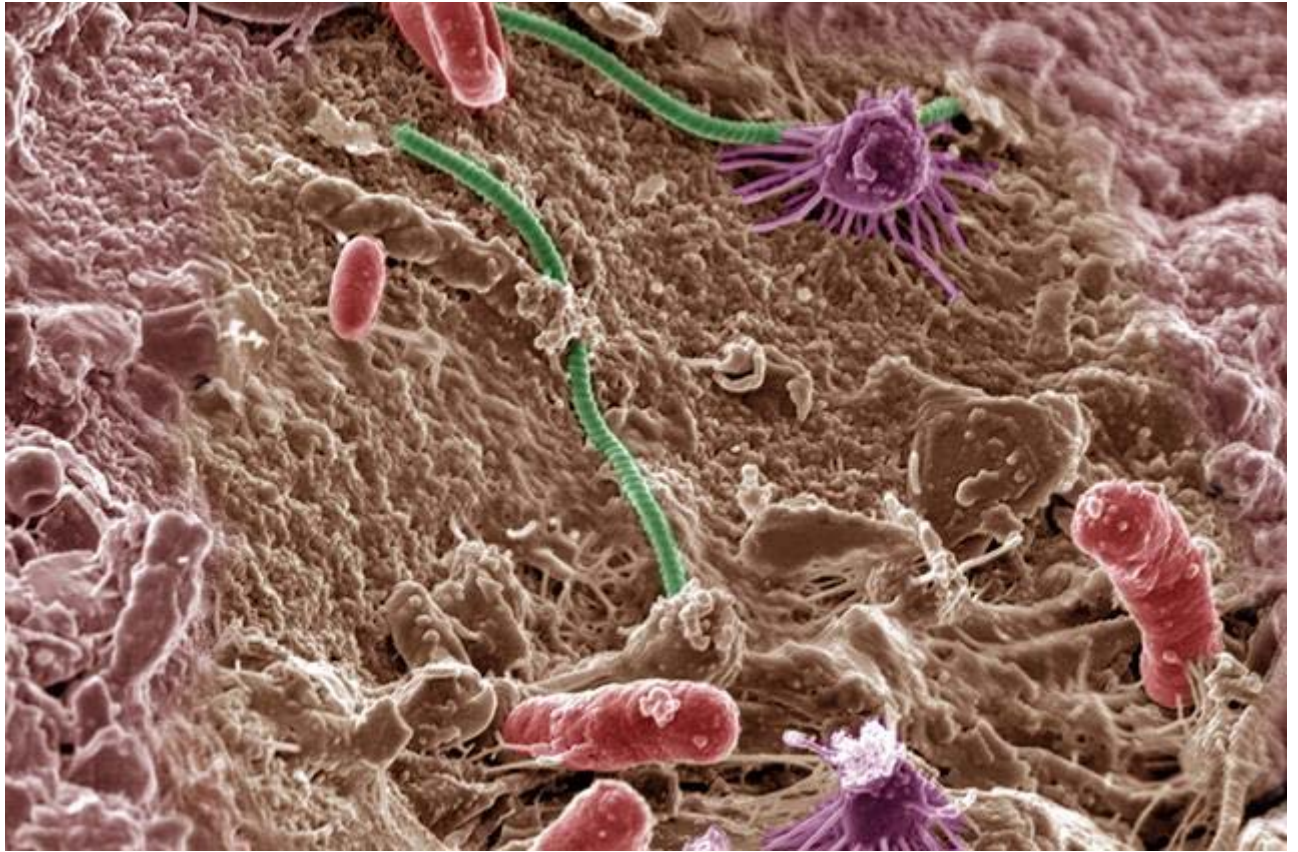


Fig. 1: Image © Catharina Friedberg and Katarzyna Brzozowski

The EEA report, '[Soil resource efficiency in urbanised areas: Analytical framework and implications for governance](#),' stresses the need for more research and mapping of the soils and their functions.

<http://www.eea.europa.eu/highlights/more-action-required-to-protect-1>

Microbiomes essential to healthy soils may adapt poorly to changing climate



Courtesy of Alice Dohnalkova/Pacific Northwest National Laboratory

The populations of bacteria, fungi and other microscopic organisms in a typical soil community may reach a billion per spoonful.

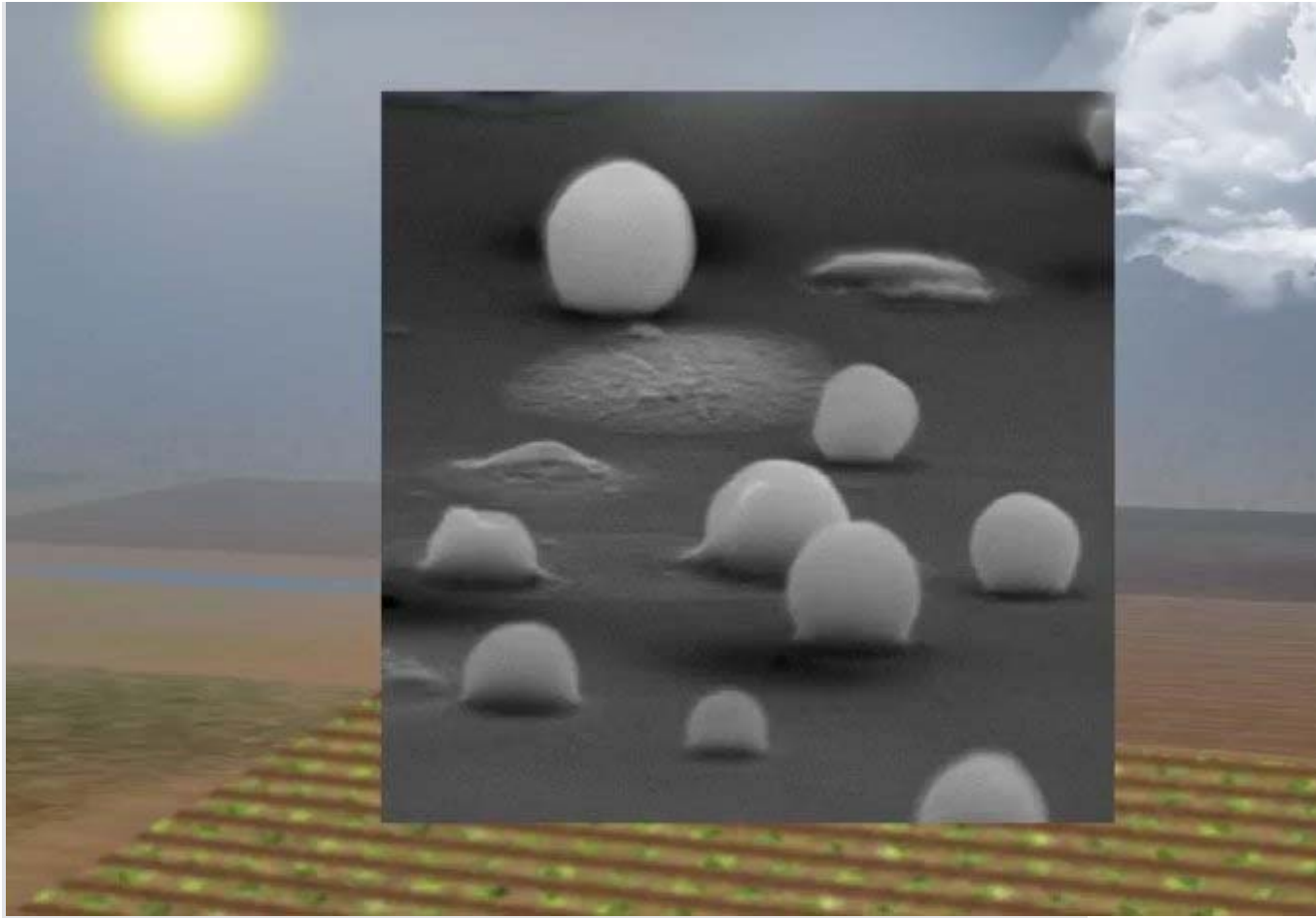
When we think of climate change's disruption to terrestrial life, we tend to think of the big things — forests, polar bears, whole categories of birds — that are under pressure and not clearly capable of adapting to new conditions.

<https://www.minnpost.com/earth-journal/2016/04/microbiomes-essential-healthy-soils-may-adapt-poorly-changing-climate>

FULL STORY

A cleansing rain falls; a soil-filled mist arises

Raindrop splash is a surprise source of fine soil particles in the atmosphere



Raindrop splash is a surprise source of fine soil particles in the atmosphere. Spheres of carbon, oxygen and nitrogen rise up and burst after a rainfall.

Credit: DOE/Pacific Northwest National Laboratory

Close

Most of us think of that sweet smell after a storm as the aftereffect of rain that has rinsed the air of pollutants and dust. But it turns out that rain also triggers the release of a mist of particles from wet soils into the air, a finding with consequences of its own for how scientists model our planet's climate and future.

The evidence comes in the form of tiny glassy spheres, less than one-hundredth the width of a human hair, discovered at the Great Plains of Oklahoma after a rainstorm and put under scrutiny by scientists at several U.S. Department of Energy facilities. The study appears May 2 in *Nature Geoscience*.

Journal Reference:

1. Bingbing Wang, Tristan H. Harder, Stephen T. Kelly, Dominique S. Piens, Swarup China, Libor Kovarik, Marco Keiluweit, Bruce W. Arey, Mary K. Gilles, Alexander Laskin. **Airborne soil organic particles generated by precipitation.** *Nature Geoscience*, 2016; DOI: [10.1038/ngeo2705](https://doi.org/10.1038/ngeo2705)

<https://www.sciencedaily.com/releases/2016/05/160502131229.htm>

New deep tillage methods on clay soils deserve a look

A couple new tillage ideas with potential for improving drainage and plant rooting on clay soils are building interest in Michigan's Upper Peninsula.

[Michigan State University Extension](#) personnel attended and presented at the February 2016 Agriculture and Food Symposium in Algoma, Canada, organized by the [Rural Agri-Innovation Network](#). At this program, information was shared on a "keyline subsoiling" project. This subsoil tilling process was developed for arid pasture and farm soils in Australia. It consists of a specific pattern of topographical subsoiling used to better equalize plant-available water held in soil across the landscape. The most important components in the process are the special subsoil plow and the well-designed plowing pattern, based on topography of the land to be treated. This process results in minimal surface disturbance and creates deep parallel slits in the ground, loosening soil and providing for improved water retention and distribution.

In Australia, the idea is to improve water holding and availability in very dry environments. In Michigan's eastern Upper Peninsula, this process just might allow for the opposite: improved drainage of excessive surface water deeper into the soil profile earlier in spring, with reduced soil saturation near the surface. Also, root penetration by perennial forage crops could be improved.

http://msue.anr.msu.edu/news/new_deep_tillage_methods_on_clay_soils_deserve_a_look

Moving beyond waste management towards a green economy

Our current resource use is not sustainable and is putting pressure on our planet. We need to facilitate a transition towards a circular, green economy by moving beyond waste policies and focusing on eco-design, innovation and investments. Research can foster not only innovation in production, but also in business models and financing mechanisms.



Fig. 1: Image © © Nikolaos Kalkounos, Picture2050 /EEA

<http://www.eea.europa.eu/articles/moving-beyond-waste-management-towards>

International Year of Pulses

In **2013** the United Nations declared that 2016 will be the International Year of Pulses. The hope of the 2016 International Year of Pulses (IYP 2016) is to position pulses as a primary source of protein and other essential nutrients.



2016 International Year of Pulses

iyp2016.org/

<http://iyp2016.org/>

[International Year of the Potato](#)



International Year of the **POTATO**

2008

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HIDDEN TREASURE

WELCOME!

Root crops symposium

The 15th Triennial Symposium of the International Society for Tropical Root Crops (ISTRC) will be held in Lima, Peru on 2-6 November 2009. Read the announcement...

New light on a hidden treasure

FAO has published a 144-page illustrated book all about the potato and the International Year.

Beyond 2008...

IYP has underscored the potato's important place in the global food system. But what is needed to realize the potato's full potential as a "food of the future"?

Photo:
Agustin Berrocal



The IYP video



**POTATOES
ON THE FRONT LINE
AGAINST POVERTY**

Our special guest...

The potato belongs to the Solanaceae family of flowering plants. Find out more...

World potato production

Almost a third of all potatoes are now harvested in China and India. See Potato world...

Potato factsheets

FAO specialists analyse key issues in potato development. Start here...

Papa andina

We'll show you potato varieties that you have never seen before. This way...

Potatoes in the kitchen

We would not be celebrating the IYP if potatoes weren't so good to eat! Recipes...

© FAO, 2008

<http://www.fao.org/potato-2008/en/index.html>

[International Year of SANITATION](#)



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Messages

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2008 INTERNATIONAL

"... I call on the international community, national governments and the private sector to act with unprecedented vigour. Let us make this a year of global action for the benefit of billions of people who do not yet enjoy this basic ingredient of human development."

In December 2006, the UN General Assembly declared 2008 the International Year of Sanitation (A/C.2/61/L.16/Rev.1) and requested the UN Department of Economic and Social Affairs to develop proposals on possible actions. The Hashimoto Action Plan launched by the UN Secretary-General in March 2006 at the 4th World Water Forum.

<http://www.un.org/en/events/sanitation/>

**Could we really mix faeces into
Martian dirt and grow potatoes?**



In the bestselling sci-fi novel and upcoming movie "The Martian," astronaut and botanist Mark Watney survives on Mars for over a year, largely thanks to his ingenious potato crop.

<http://www.techinsider.io/growing-food-on-mars-like-the-martian-2015-9>



<https://www.youtube.com/watch?v=Lo-jNVt9xhQ>

Sustainable management is the key to healthy forests in Europe

Forests in Europe provide us essential services: clean air, clean water, natural carbon storage, timber, food and other products. They are home to many species and habitats. We talked about the challenges Europe's forests face with Annemarie Bastrup-Birk, forest and environment expert at the European Environment Agency.



Fig. 1: Image © Juan Carlos Farias Pardo, Environment & Me /EEA

<http://www.eea.europa.eu/articles/sustainable-management-is-the-key>

OP-ED: Soil Deterioration – A Constraint to Sustainable Agricultural Productivity

28 April 2016 by [Henry Nyuma](#)



“Our soil is rich,” “The soil is a bank,” “Get back to the soil!” These are common slogans by Liberians and some agricultural institutions in appreciating support for agricultural productivity in this tiny coastal West African nation which is indeed endowed with immense natural resources including gold, diamond, iron ore, and other forest resources.

<http://www.bushchicken.com/op-ed-soil-deterioration-a-constraint-to-sustainable-agricultural-productivity/>

Do You Really Know Your Soil?

GET THE INSIDE SCOOP.

By
[Kacey Birchmier](#)



Ever been told by your doctor that you need to lower your blood pressure or cholesterol? Without a physical exam or a blood test, you wouldn't have had a clue these steps are needed.

Ditto for your crop fields.

They may be low in phosphorus. Acidic soils in need of lime may be crimping yields. Fields could even be teeming with pests like soybean cyst nematode (SCN).

Without a soil test, though, you just don't know.

<http://www.agriculture.com/content/do-you-really-know-your-soil>

**Lead in soil another known factor in
Flint**



Michigan State University public health researcher, Rick Sadler, is helping the city of Flint combat its lead problem through his mapping research.

Credit: G.L. Kohuth

Close

For years, the city of Flint has been trying to fight another battle with lead...and it lies within the soil.

A new study, involving a Michigan State University researcher, has found that higher rates of Flint children showed elevated lead levels in their blood during drier months of the year, even before the switch to a new water supply. The findings suggest that lead contaminated soil is most likely the culprit especially in the older, more industrial areas of the city.

The research is published in the *International Journal of Environmental Research and Public Health*.

Journal Reference:

1. Mark Laidlaw, Gabriel Filippelli, Richard Sadler, Christopher Gonzales, Andrew Ball, Howard Mielke. **Children's Blood Lead Seasonality in Flint, Michigan (USA), and Soil-Sourced Lead Hazard Risks.** *International Journal of Environmental Research and Public Health*, 2016; 13 (4): 358 DOI: [10.3390/ijerph13040358](https://doi.org/10.3390/ijerph13040358)

<https://www.sciencedaily.com/releases/2016/03/160331124723.htm>

How much does groundwater contribute to sea level rise?

2 May 2016



Credit: Tiago Fioreze / Wikipedia

Groundwater extraction and other land water contribute about three times less to sea level rise than previous estimates, according to a new study published in the journal *Nature Climate Change*. The study does not change the overall picture of future sea level rise, but provides a much more accurate understanding of the interactions between water on land, in the atmosphere, and the oceans, which could help to improve future models of sea level rise.

Read more at: <http://phys.org/news/2016-05-groundwater-contribute-sea.html#jCp>

Laser reveals water's secret life in soil



Hirmas uses his MLT scanner at night in a soil pit. Ambient daylight interferes with the detection of the pores. Cooler night temperatures also allow the scanner to stay cool and minimize the evaporation of water from the surface during the scanning procedure.

Credit: Photo provided by D. Hirmas

Most of us think nothing of rainfall or where it goes, unless it leads to flooding or landslides. But soil scientists have been studying how water moves across or through soil for decades. Daniel Hirmas, a professor at University of Kansas, and his team may be taking the study of soil hydrology to some exciting new territory. Territory that may help soil scientists manage water resources better.

Journal Reference:

1. Dennis V. Eck, Mingming Qin, Daniel R. Hirmas, Daniel Giménez, Nathaniel A. Brunsell. **Relating Quantitative Soil Structure Metrics to Saturated Hydraulic Conductivity.** *Vadose Zone Journal*, 2016; 15 (1): 0 DOI: [10.2136/vzj2015.05.0083](https://doi.org/10.2136/vzj2015.05.0083)

<https://www.sciencedaily.com/releases/2016/03/160330135621.htm>

'Climate-smart soils' may help balance the carbon budget



Decreasing greenhouse gas emissions, sequestering carbon and using prudent agricultural management practices that tighten the soil-nitrogen cycle can yield enhanced soil fertility, bolster crop productivity, improve soil biodiversity, and reduce erosion, runoff and water pollution, say investigators.

Credit: © kwfeng / Fotolia

Close

Here's the scientific dirt: Soil can help reduce global warming.

While farm soil grows the world's food and fiber, scientists are examining ways to use it to sequester carbon and mitigate greenhouse gas emissions.

"We can substantially reduce atmospheric carbon by using soil. We have the technology now to begin employing good soil practices to reduce greenhouse gas emissions," said Johannes Lehmann, Cornell University professor of soil and crop sciences, co-author of the Perspectives piece, "Climate-smart Soils," published in *Nature*, April 6.

Journal Reference:

1. Keith Paustian, Johannes Lehmann, Stephen Ogle, David Reay, G. Philip Robertson, Pete Smith. **Climate-smart soils**. *Nature*, 2016; 532 (7597): 49 DOI: [10.1038/nature17174](https://doi.org/10.1038/nature17174)

<https://www.sciencedaily.com/releases/2016/04/160407221447.htm>

"Soils are like a bank account. You should only draw out what you put in." -- Rattan Lal of Ohio State University

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**International
Decade of Soils**
2015-2024