Mars and Moon soil can support crops, team claims

by Susanna Pilny
In one small step for man, scientists from Wageningen University and Research Centre in the Netherlands claim to have successfully grown the first crops using soils that simulate those found on Mars and the Moon.

In a **University statement**, the researchers revealed what they deemed to be surprising results—especially considering the first time they tried, the moon crops nearly entirely failed. This experiment was round two, which started in April of 2015.

Growing otherworldly crops

The researchers sowed 10 different crop species (tomato, rye, radish, pea, leek, spinach, garden rocket, cress, quinoa, and chives) in trays containing either Mars or Moon soil simulants or regular potting compost as a control representing Earth soil. The soil simulates were provided by NASA and represent the closest otherworldly equivalents found on earth: soil from a specific volcano in Hawaii for Mars, and soil from the desert in Arizona for the Moon.
Read more at http://www.redorbit.com/news/space/1113413020/mars-moon-crops-study-030816/#Avfz7jrlxyYrXJXr.99

The swings and roundabouts of soil carbon

Protecting or increasing the carbon content of soils is a complicated balancing act of increasing inputs and reducing losses, writes researcher Susanna Rutledge.

Last updated 12:59, March 15 2016

Waikato University research fellow Susanna Rutledge and technical officer Aaron Wall check soil carbon measurements on a dairy farm near Waharoa, Waikato.

Soils in New Zealand generally contain large amounts of carbon, especially those soils used for pastoral agriculture.

In soil, this carbon is part of organic matter which is vitally important for soil health; including maintaining soil structure, storing water, supporting nutrient cycling and providing food for soil organisms. Maintaining reasonable levels of soil carbon is therefore beneficial for food and fibre production but also for protecting the environment.

Researchers in New Zealand and around the world are now working to identify farm management practices that protect this soil carbon from loss, or even increase carbon stocks as a way of mitigating climate change and enhancing the soil functions described above.

http://www.stuff.co.nz/business/farming/77884918/the-swings-and-roundabouts-of-soil-carbon

Out of Africa: mystery ‘fairy circles’ found in west’s red soil

- THE AUSTRALIAN
- MARCH 15, 2016 7:00AM
- John Ross

An aerial view of the Australian fairy circles near the Pilbara mining town of Newman. Picture: Kevin Sanders.

In a discovery set to send ecologists into a spin, scientists say they have found "fairy circles" — mysterious holes in vegetation, previously known only in Africa — in the parched red soil of the Pilbara.

The hexagonal patches of bare earth pockmark an area of about 1000sq km near the mining town of Newman. Aerial images show that they share "nearly identical spatial characteristics" with the beguiling fairy circles of Namibia — which have been described as one of nature's greatest mysteries — according to a report in the journal *PNAS*.
http://www.theaustralian.com.au/higher-education/out-of-africa-mystery-fairy-circles-found-in-wests-red-soil/news-story/cee917bb2028e47e49c2383132828b35

Soils in Myanmar

Photo By CoP member John Lawrie

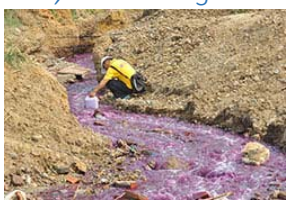
22 Organizations Working to Restore Soils in 2016

Food Tank highlights 22 organizations that are restoring soils and ecosystems worldwide.

According to the recent United Nations report, Status of the World's Soil Resources, the world can ameliorate soil degradation if more sustainable practices are promptly implemented. The U.N. Food and Agriculture Organization (FAO) defines soil degradation as "a change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries. Degraded soils have a health status, such that they do not provide the normal goods and services of the particular soil in its ecosystem." http://foodtank.com/news/2016/03/twenty-two-organizations-working-to-restore-soils-in-2016

China Aims to Pass Soil Pollution

Law, Addressing Widespread Contamination



Li Feng/Yale E360

Wastewater from a chemical plant in China.

China is aiming to pass its first soil pollution law next year to address what Chinese officials are calling a “serious” problem of widespread contamination of the nation’s agricultural land. The pollution is the result of three decades of rapid economic and industrial development that left landscapes ridden with toxins and heavy metals, contaminated staple crops like rice, and jeopardized public health. “Looking at the results of soil pollution surveys from relevant departments of the State Council ... it's not easy to be optimistic. Some areas are seriously polluted," Yuan Si, deputy head of parliament's Environmental Protection and Resources Conservation Committee, told reporters. The soil pollution law has gone through 10 drafts already and will likely be put on the legislative agenda for 2017, Yuan said.

https://e360.yale.edu/digest/china_aims_pass_soil_pollution_law/4674/

SA bushfires: Farmers fight to save topsoil after devastating 85,000-hectare blaze

Landline

By Kerry Staight

Updated 5 Mar 2016, 3:26pm

PHOTO: Exposed soil stretches over 55,000 hectares after the SA bushfires last year. (ABC News: Kerry Staight)

A huge expanse of normally productive farming land in South Australia's mid north now looks more like a desert after a bushfire tore through 85,000 hectares last November, killing two people. http://www.abc.net.au/news/2016-03-05/sa-farmers-fight-to-save-soil-after-devastating-bushfires/7221906

Monday paper: Permafrost degradation in Antarctica

Posted on 9 March 2015 by Marc Oliva

In contrary to what happens in the Arctic where permaforst thawing and associated geomorphic and socio-economic implications are being broadly examined, in Antarctica the network of permafrost monitoring sites is limited and no clear trends in permafrost conditions have been observed during the last recent years (e.g. Vieira et al., 2010; Bockheim et al., 2013).

Panoramic view of the deglaciated area since 1956 in Elephant Point, Antarctica
https://egusssd.wordpress.com/2015/03/09/monday-paper-permafrost-degradation-in-antarctica/

Acid soils, aluminum toxicity cause production problems

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Table 1: Results of soil analysis from Chouteau county area

Sample	pH	Aluminium (ppm)
Farm 1 (0-6 inch)	4.4	169.0
Farm 1 (6-12 inch)	6.6	1.1
Farm 2 (0-6 inch)	5.0	19.6
Farm 2 (6-12 inch)	7.1	1.0
Farm 3 (0-12 inch)	4.3	110.0

Chouteau county soil chart

Results of soil analysis from Choteau County area

Soil that is acidic can cause numerous production problems for producers – and aluminum in soils may be adding to those problems.

Dave Wichman and Shabeg Briar, agronomists at Montana State University's Central Ag Research Center, Moccasin, Montana, were alerted to crop damage and poor crop stands in several fields of cereal grains in central Montana. http://www.farmandranchguide.com/news/crop/acid-soils-aluminum-toxicity-cause-production-problems/article_33705dc8-ec6c-11e5-ab64-83a8676c6320.html

Jeff Mitton: Narrowleaf mountain mahogany's adaptations to thin soils and herbivores

By Jeff Mitton

For the Camera

POSTED: 03/10/2016 10:34:20 PM MST | UPDATED: 19 DAYS AGO

The flowers of narrowleaf mountain mahogany appear in March on the Colorado plateau. (*Jeffrey Mitton / Courtesy photo*)

My perch on Muley Point allowed me to watch the first rays of sunlight strike the monoliths in Monument Valley and watch the warm glow penetrate the dark canyon of the San Juan River.

It had been a chilly night in late March, but now the warmth of a bright morning brought out the beauty of the early flowers on the Colorado Plateau.

Jeff Mitton Natural Selections

http://www.dailycamera.com/science_columnists/ci_29623544/jeff-mitton-narrowleaf-mountain-mahoganys-adaptations-thin-soils

Contaminated soils leave Japanese cattle producers displaced five ye after the Fukushima nuclear disaster

ABC Rural By Sarina Locke

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Posted 11 Mar 2016, 2:47pm

At the fifth anniversary of one of the world's worst nuclear disasters, farmers near the Fukushima power plant in Japan are still unable to farm.

The tsunami that struck the north coast on March 11, 2011 flooded the power plant, prompting a meltdown that released radiation onto the surrounding region.

Soil was contaminated, animals were later slaughtered and the farmers could not sell their produce.

Melanie Brock, the chairwoman of the Australia New Zealand Chamber of commerce in Japan, said some Fukushima farmers still cannot farm.

"A lot of it is still not known, many countries won't import produce from Fukushima," she said while on a visit to a farm north of Fukushima.

PHOTO: Japanese farmers are still displaced from their land five years after the Fukushima nuclear disaster. (AFP: Tomohiro Ohsumi)

MAP: Sydney 2000

00:00 00:00

AUDIO: Melanie Brock of the Australia New Zealand Cham of Commerce in Japan on the Fukushima farmers who car farm and the resilient Rikuzentakata farmers (ABC Rural)

http://www.abc.net.au/news/2016-03-11/5th-anniversary-tsunami-farming-in-japan/7239188

A Leading Scientist Promotes Agroecology in the Movement Against Pesticides

Marcia Ishii-Eiteman is one of the experts leading the movement against the widespread use of pesticides.

In 2007, the United States agricultural industry spent over 7.8 billion dollars on pesticides, herbicides, and fungicides combined. Marcia Ishii-Eiteman is one of the experts leading the movement against the widespread use of pesticides. She is a senior scientist and director of the Grassroots Science Program at the Pesticide Action Network (PAN). She is also a graduate of Yale and Cornell Universities with degrees in women's studies and ecology and evolutionary biology. http://foodtank.com/news/2016/03/a-leading-scientist-promotes-agroecology-in-the-movement-against-pesticides

Soil patterns designed to prevent erosion

Posted 5 Mar 2016, 2:23pm

Patterns in the soil are designed to prevent wind erosion on the vulnerable topsoil.

http://www.abc.net.au/news/2016-03-05/soil-patterns-designed-to-prevent-erosion/7222084

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New map of Earth's groundwater to help estimate when it may run out

ABC Science

Posted 17 Nov 2015, 1:20pm

Less than 6 per cent of ground water in the upper two kilometres of the Earth's landmass is renewable within a human lifetime, according to a new map showing the world's hidden groundwater.

"This has never been known before," said the study's lead author, Dr Tom Gleeson of the University of Victoria in Canada.

"We already know that water levels in lots of aquifers are dropping. We're using our groundwater resources too fast -faster than they're being renewed."

Using data and computer models, an international group of hydrologists has produced the first data-

PHOTO: Water found deeper in the Earth is often used for agriculture and industry. (ABC TV)

MAP: United States

http://www.abc.net.au/news/2015-11-17/new-map-will-help-estimate-when-earths-groundwater-will-run-out/6947038

Climate science will be sourced elsewhere after CSIRO cuts: chief scientist

ebruary 10, 2016 11.39am AEDT

hief Scientist Alan Finkel appeared before a Senate estimates hearing on Wednesday. AAP Image/Lukas Coch

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Australia must ensure that climate programs are maintained following cuts to climate science jobs at CSIRO, according to Chief Scientist Alan Finkel.

In a statement and appearance before a Senate estimates hearing on Wednesday, Finkel said there was a large capacity for climate science outside the CSIRO.

Last Thursday, CSIRO chief executive Larry Marshall announced 350 positions at CSIRO would change under a new strategic direction, in a move criticised by experts.

http://theconversation.com/climate-science-will-be-sourced-elsewhere-after-csiro-cuts-chief-scientist-54465

Fascinating, unusual career with soils: Soil physics

27 March 2016 6:45 pm • Sue Roesler, Farm & Ranch Guide

A soil physicist is an unusual career option to have, and not many college students are even aware of it as a possible degree or a career path.

Aaron Daigh, North Dakota State University assistant professor of soil physics, did not start out his college days with the idea of working with soils.

Instead, Daigh began studying for a degree in chemical engineering at the University of Arkansas (UA).

“In chemical engineering, a lot of the classes deal with the movement of fluids through a series of pipes and converting those fluids into useful and marketable products,” Daigh said.

“The goal of chemical engineering is to make and optimize a system for producing that product.”
http://www.farmandranchguide.com/news/special_section/fascinating-unusual-career-with-soils-soil-physics/article_da87680c-f1dc-11e5-9356-a73b35855c61.html

“Heaven is under our feet as well as over our heads.”
— Henry David Thoreau, *Walden*