

Cross-Institute Programme for Sustainable Soil Function

SoilCIP

Newsletter for July and August 2008



SoilCIP research highlighted in Science and Nature

Recent research by Fangjie Zhao, Steve McGrath and others on arsenic in rice has been highlighted in both *Science* and *Nature*. The *Nature* article reads:

PLANT SCIENCES - Poisonous grains

Proc. Natl. Acad. Sci. USA doi:10.1073/pnas.0802361105 (2008)

Rice is efficient, indeed disconcertingly so, at assimilating arsenic from the soils of paddy fields. But how it does this has been unclear. Now Fang-Jie Zhao at Rothamsted Research in Harpenden, UK, Jian Feng Ma at Okayama University in Japan and their colleagues have discovered that it is taken into the plant as though it were silicon. They found that two transporter proteins belonging to the family known as aquaporins enable arsenite to move from rice's soggy surroundings into its vascular system. Mutations in the genes encoding either of these proteins reduced arsenite uptake by the roots and the amount of arsenic that accumulated in shoots and grains. The authors hope that different versions of these genes exist that favour silicon transport over that of arsenite. If so, rice carrying such versions could be planted in regions of the world where arsenic poisoning is a problem.

Staff changes

Drs Jenni Dungait, Ian Ashton and Mark Durenkamp have either just joined us or will be joining us shortly. Jenni replaces Phil Haygarth (can anyone?) at North Wyke. Ian and Mark have joined Phil Brookes' group. Please make them welcome. Kathy Snars returned to Australia on completion of her BBSRC grant with Phil Brookes; we wish her well.

Meetings

BSSS autumn meeting at Rothamsted – 17th September 2008

Don't forget that the SoilCIP is organizing and hosting this autumn's one-day meeting of the British Society of Soil Science: '*Something old, something new: integrating molecular biology with other techniques in soil science*'. Keynote speaker is Penny Hirsch. Registration, lunch, teas and coffees only £25! I have a provisional programme and registration form for anyone interested.

'Soil Organic Matters'

There will be a scientific meeting from 23 June to 25 June 2009 to:

1. Acknowledge the great contribution to soil science made by Professor David Jenkinson FRS over many decades.
2. Bring together scientists actively involved in research in the areas in which David laid foundations in order to review current challenges and trends.

Some of the invited speakers have worked with David at Rothamsted - others have conducted research in the areas for which he is well known. Topics covered will be:

- Soil organic matter dynamics
- The global carbon cycle and climate change
- Soil microbial ecology
- Soil nitrogen dynamics including efficiency of use of N fertilizer by crops and the global N cycle

A full programme will be announced later. Further details and preliminary registration is now available on-line at:

<http://www.rothamsted.bbsrc.ac.uk/Research/SoilOrganicMatters/>

General enquiries should be addressed to Breda Langer on 01582 763133 ext 2907 or email breda.langer@bbsrc.ac.uk

Soil Water Physics Group meeting

Richard Whalley will be hosting the next meeting of the Soil Water Physics group at Rothamsted on the 18th February 2009. The theme will be "The physics of soil plant interactions". Prof Peter Gregory, SCRI, is giving the keynote talk. At this stage the Group is still soliciting speakers so please contact Richard (richard.whalley@bbsrc.ac.uk) if you would like to present a paper. BSSS is assisting with basic travel expenses. There will be a small charge for the event - probably around £20 - to cover room hire, coffee and lunch.

Soil atlas of Europe – free

The Soil Atlas of Europe can be downloaded at no monetary cost but at some cost in time. The user has to download each page separately (128 pages in total). The PDF versions provide a better quality version compared with the JPEG files. There are 20 plates of maps which are included as 2-page PDF files, pages 40-79. The user can navigate and select the files to download either by browsing the whole Atlas or by selecting one of the sections in the Contents. Each page has a title and belongs to one of the 7 sections of the Atlas (Introduction, The Soil of Europe, Soil Maps of Europe, European Soil: A Global perspective, A Soil Database of Europe, Key threats to soil in Europe, Additional Information). More info at:

http://eusoils.jrc.it/projects/soil_atlas/Download.cfm

Agriculture and the Environment – Recent indicators

The fourth volume of the OECD (Organisation for Economic Cooperation and Development) series "Environmental Indicators for Agriculture" has been published as two reports: '*Environmental Performance of Agriculture: at a Glance*' - covering a summary of the main conclusions. '*Environmental Performance of Agriculture in OECD Countries since 1990*' - providing complete coverage of the OECD agri-

environmental indicators by environmental themes and across the 30 member countries since 1990. More about this at:

http://www.oecd.org/document/56/0,3343,en_2649_33793_40374392_1_1_1_37401,00.html

BIOSCIENCES FEDERATION

Report on science policy June and July 2008

The Department for Innovation, Universities and Skills published its response to a select committee inquiry into science budget allocations on 17th June, giving assurances that the Haldane Principle is always observed when science funding is allocated. In their report the Committee for Innovation, Universities, Science and Skills suggested the government had breached the Haldane Principle and gave instances where the government had “micromanaged” the way research councils spent their funds. The government yesterday denied this charge but a number of scientific bodies have said they remain concerned. <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmdius/639/639.pdf>

QUOTE OF THE MONTH

“The Government rejected the bulk of our conclusions and recommendations, and we acknowledge that they have every right to do so, but they do not have the right to traduce what the Committee said or to produce a response that was impolite, inaccurate and, at times, incomprehensible. That is unacceptable and should be challenged”. Phil Willis, Chair of the Innovation, Universities, Science and Skills Committee criticizes the Government’s response to its report on science budget allocations (7th July).

RCUK

Research Councils UK launched the new Concordat to Support the Career Development of Researchers, which sets out the expectations and responsibilities of researchers, their managers, employers and funders. It aims to increase the attractiveness and sustainability of research careers in the UK and to improve the quantity, quality and impact of research for the benefit of UK society and the economy. www.researchconcordat.ac.uk

RCUK has launched Darwin 200, a series of events to honour Charles Darwin’s 200th birthday. It will run several public events throughout 2009, informing visitors about Darwin’s scientific ideas and achievements, and their impact on modern science. A website called *Darwin Today*, which is part of the programme, will feature podcasts and a discussion forum about modern evolution research. <http://www.darwin.rcuk.ac.uk/>; <http://www.darwin200.org/> (The BBC was filming at Rothamsted in early August for a programme ‘What Darwin didn’t know’, due to be broadcast in 2009.)

Research into drought resistant crops is among projects that will share £68 million of government funding aimed at boosting the commercialisation of research. The science minister, Ian Pearson, announced the funding at an event at the Natural History Museum in London on 23 June. The Department for Innovation, Universities and Skills contributed £30m of the funding, with the rest coming from other government departments, research councils and charities. The Public Sector Research Exploitation fund will be used to support the initial stages of commercialising research before third party investment is secured. <http://nds.coi.gov.uk/environment/fullDetail.asp?ReleaseID=371507&NewsAreaID=2&NavigatedFromDepartment=False>

The introduction of biofuels should be slowed until effective controls are in place to prevent land use change and higher food prices, according to the Renewable Fuels Agency’s review of the indirect effects of biofuels. The review led by Ed Gallagher, chairman of the RFA, found that, in the medium term, increased demand for biofuels would potentially have a small but negative impact on poor people. Shorter-term impacts were likely to be more severe, and

would require government intervention. The Renewable Transport Fuel Obligation currently calls for 2.5 per cent of the fuel supplied for road transport in 2008-09 to be biofuels, and proposes that this should increase by 1.25 per cent a year to 5 percent in 2010-11. Gallagher wants the rate of increase to be reduced to 0.5 per cent a year, meeting the 5 per cent target in 2013-14. To encourage the use of advanced technologies, Gallagher says the EU should impose a specific obligation for 1-2 per cent for biofuels to be produced from wastes and residues, on marginal land or without the need for agricultural land, for example, from algae. "Our review makes clear that the risks of negative impacts from biofuels are real and significant, but it also lays out a path for a truly sustainable biofuels industry in the future," said Gallagher. <http://nds.coi.gov.uk/Content/Detail.asp?ReleaseID=373152&NewsAreaID=2>

EU/INTERNATIONAL NEWS

A group of scientists have written to Hilary Benn, the secretary of state for environment, to say that European proposals to limit the use of pesticides will have "devastating consequences" for farming. The new regulations would impose stricter measures on the use of pesticides in an attempt to reduce human intake of harmful chemicals in food and to limit detrimental effects on the environment. The new legislation would have more stringent criteria for what counts as hazardous. The scientists said the new regulations were based on a simplistic approach looking at a chemical's intrinsically hazardous properties, rather than the actual risk it posed in a practical context. The science minister, Ian Pearson, has added his support to the scientists saying that EU policy needs to be driven by scientific evidence. The EU Council of Agriculture Ministers voted by a qualified majority - with the UK abstaining - to adopt the proposals by the Commission. The proposal now passes to the European parliament for a second reading.

<http://www.bcp.org/publications/newsreleases/20080703.htm>

The full Biosciences Federation report can be seen at the BSF Science Policy web page: http://www.bsf.ac.uk/science_policy.htm

Go to the bottom of the web page and click on 'FULL REPORT'.

Keith Goulding, 29th August 2008