

# Cross-Institute Programme for Sustainable Soil Function

## SoilCIP

Newsletter for March 2007



### Soil CIP's highly cited scientist

A recent report (attached with this newsletter) focused on Plant Science research in the Europe. Of special interest and encouragement to the SoilCIP is that Steve McGrath is ranked as the 20<sup>th</sup> most cited author in Plant Sciences over the period 1999-2005. Congratulations Steve.

Metrics for assessing the performance of individuals, research groups and institutes are becoming increasingly important and Steve has been leading a review of the use of these for Rothamsted science, including the 'h' factor. Quoting from Steve's draft report:

“ Essentially, the  $h$  index attempts to strike a balance between productivity (total number of papers) and “quality” (e.g. number of highly cited papers) and to avoid the heavy weight that power-law distributions place on a relatively small number of highly cited papers. The measure is obtained by ranking papers in order of decreasing citations and finding the point at which the number of papers equals the number of citations. Therefore, an  $h$  index of 10 means an individual has published 10 papers that are cited 10 or more times, and similarly for 20, 30, 40 etc (see Figure 1).

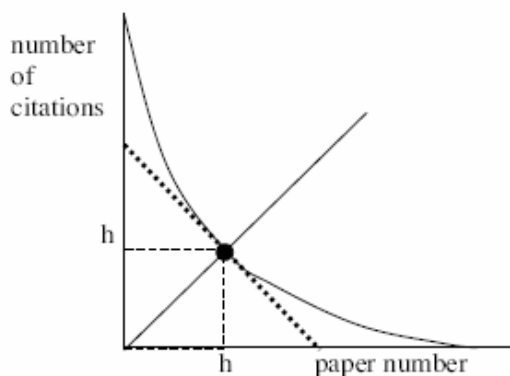


Figure 1. Distribution of the number of citations each paper has against number of papers, and the point at which these are equal: the  $h$  index.

The scheme was published in *Nature* by Hirsch. He suggested that after 20 years in research, an  $h$  of 20 is a sign of success, and one of 40 indicates “outstanding scientists likely to be found only at the major research laboratories”. He stated that an  $h$  of about 12 should be good enough to secure tenure in the US university system. Fellowship of the American Physical Society, for example, should occur typically at

an  $h$  of 15–20, and of the National Academy of Sciences at an  $h$  of about 45. Apparently, new NAS members in physics and astronomy had an average  $h$  of 44 in 2005. Hirsch raised the question of whether different disciplines have different citation patterns, and suggested that each field would need different thresholds. Analysis does show, however, that Rothamsted staff can reach the  $h$  values typical of those in physics cited by Hirsch. A study by Minasny, McBratney and Hartemink in *Pedometron* showed that on average Soil Scientists add to their  $h$  factor by 0.7 per year, which would give an  $h$  of 14 after 20 years. Further work is needed to determine whether there are differences across disciplines. “

I've also attached the Hirsch paper in *Nature*. No single number can be used on its own, but a combination of metrics such as the ' $h$ ' factor, no of papers, total citations, etc. along with benchmarks in particular fields, provides a valuable means of assessing performance.

### **Kit Macleod, Honorary Research Fellow**

Kit Macleod has been invited to become an Honorary Research Fellow in the School of Geography, Archaeology and Earth Resources at The University of Exeter. This award recognises his strong collaborative links with the University. The link will advance current and future research linkages into sustainable rural systems between North Wyke and The University. Well done Kit.

### **Grant proposals**

A BBSRC Systems Biology bid on roots involving Andy Whitmore with Nottingham, Abertay and Newcastle Universities has passed the first round of assessment. A full proposal will be submitted by 11<sup>th</sup> April. A proposal to the BBSRC/DfID scheme on arsenic by Steve McGrath and colleagues has also passed the first round. A full proposal was submitted on 15<sup>th</sup> March.

### **EU COST Action 856 / BSSS meeting at Aberdeen**

Lucy Gilliam, Roland Bol and I attended this meeting at which I gave a Keynote Lecture '*Impacts of the anthropogenically-enhanced nitrogen cycle on human health and air and water pollution*' and Roland presented a paper on '*Antecedent moisture conditions influences  $N_2O/N_2$  ratios and isotopomer distributions of emitted  $N_2O$  in UK agricultural soils*' that reported results from our collaborative research on denitrification.

### **Cross-Institute visits and links**

Brian Kerry and I will be visiting North Wyke on 19<sup>th</sup> April and I'll be there on 20<sup>th</sup> as well. The Rothamsted Science Strategy Forum has agreed to visit North Wyke later in the year to learn about its research.

During the EU COST Action meeting in Aberdeen, I took advantage of being in Aberdeen to visit the Macaulay Institute to further our collaborations with it on soil

science, meeting Willie Towers, Steve Chapman, Peter Millard, Rupert Hough (leading SEERAD Soils Work Package 3.2) and Mark Stutter. I was hoping to see Helaina Black (leading SEERAD Soils Work Package 3.3), but she has hurt her back again.

### **British Society of Soil Science 'Young Scientists' meeting, 29 and 30 March**

Lucy Gilliam, with Ana Meijide and Anja Bergsterman, SoilCIP students at N Wyke, presented a talk at the BSSS 'Young Scientists' meeting about their research with Roland, David Scholefield and Laura Cardenas on 'Correlation of nitrous oxide emissions with gene expression of functional genes involved in denitrification and isotopomer analysis'.

### **New Rothamsted International Fellow**

Rothamsted International (RI) runs a Fellowship scheme that allows us to choose and pay for visiting scientists from developing countries to study with us for up to a year. Details are at:

<http://www.rothamsted-international.org/>

This will, of course, soon be open to North Wyke SoilCIP staff. Our latest RI Fellow, Miss Su Yuhong, arrived on 30<sup>th</sup> March to work with Steve McGrath and Fangjie Zhao on assessing the bioavailability of polyaromatic hydrocarbons.

Keith Goulding, 30th March 2007