collection of 12 chapters, each of which is written by experts in the field. The book starts with two broad chapters that set the scene on the nature of the problem. This is then followed by 10 chapters which focus on the use of INM in different regions of the world (e.g. North America, South Asia, Europe, South America, Sub-Saharan Africa). All of the chapters are very well written, can be read in isolation and contain up-to-date literature. In its entirety, the book brings together more than 1300 references on INM strategies and so provides an excellent synthesis of published material. The 'Research gaps and future needs' sections at the end of the chapters are also an indication of the level of thought given by the authors. The book contains lots of really useful figures and tables that highlight the key points from each chapter and will be very useful to undergraduate and postgraduate students as well as to experienced research scientists. The global perspective makes it particularly useful in this respect, as there is something for everyone in the book. I can thoroughly recommend this book as a worthwhile purchase.

Davey Jones

Microbial Ecology of Aerial Plant Surfaces. Edited by M. J. Bailey, A. K. Lilley, T. M. Timms-Wilson and P. T. N. Spencer-Phillips. Wallingford, UK: CAB International (2006), pp. 315, £75.00. ISBN-13: 978-1-84593-061-5. doi:10.1017/S0014479707005546

This book is a welcome addition to the literature on the phyllosphere and it covers a wide range of modern methodologies for the study of microorganisms residing on and inside aerial plant organs. Emphasis throughout the book is given to the ecology of bacterial populations, though reference is made to tropical fungal endophytes and fungi used in biological control of plant pathogens. The book is edited to a high standard (I noticed only a few typographical errors) but in my view suffers from the inevitable problem of creating a textbook from the participants who attended a meeting. However, the first chapter by S. Lindow makes a brave attempt to unify the diverse chapters that follow and makes perceptive comments on the gaps left by current work. The editors could perhaps have overcome some of these difficulties by making more cross-referencing between chapters (e.g. quorum sensing is mentioned in several chapters). The colour plates are excellent, but the monochrome photographs are disappointing.

The text deals with the increasing knowledge about the diversity of bacterial populations and their assemblages at small scales on plant surfaces and the communication between cells through exchange of genetic material or signal molecules. It also covers the production of bacterial biofilms and their potential roles in survival and success of populations of epiphytes in potentially hostile microhabitats. These earlier chapters help the reader to understand the profound difficulties encountered in the design and development of consistently effective biological control agents for plant pathogens.

Brian Williamson

Modeling Phosphorus in the Environment. Edited by D. E. Radcliffe and L. Cabrera. Boca Raton, Fl, USA: CRC Press/Taylor and Francis Group (2007), pp. 420, £74.99. ISBN 0-8493-3777-1. doi:10.1017/S0014479707005558

Modeling Phosphorus in the Environment provides a comprehensive coverage of how the processes controlling the sources, mobilization and transport of phosphorus in the rural environment are modelled. Section 1 provides an introduction to modelling the processes controlling phosphorus loss at the field and catchment scales and the approaches taken in commonly used field and catchment scale water quality models. Section 2 includes chapters from developers and users of widely used watershed water quality models. These descriptions of the theory and formulations provide a handy reference for prospective and current model users. Where this section could be found lacking is in the omission of a more critical discussion on the limitations of these models. The final section covers the development of phosphorus indices and challenges to their implementation. The book concludes with valuable chapters discussing the use and limitations of models in the evaluation of best management practices and the challenges in collecting data to develop and test watershed scale water quality models. Overall, this book provides an important review of how phosphorus losses from rural catchments are modelled at the field to catchment scale. The book correctly concludes by highlighting the critical need for long-term nested monitoring data which are required for future advances in the modelling of phosphorus.

The majority of the contributors are from the US and work originating from North America is the focus of the book. We recommend this book to researchers and catchment managers with either an interest in how to model the transport and fate of phosphorus in the environment or how to improve their understanding of model outputs.

C. J. A. Macleod *and* P. M. Haygarth

Molecular Approaches to Soil, Rhizosphere and Plant Microoganism Analysis. Edited by J. E. Cooper and J. R. Rae. Wallingford, UK: CABI Publishing (2006), pp. 297, £75.00. ISBN 1-84593-062-2. doi:10.1017/S001447970700556X

This book aims to give an introduction to molecular-based methods applied to a range of topic areas relating to soil biology or ecology. The book is split into 16 chapters which can broadly be separated into two classes. Some chapters discuss specific molecular approaches such as micro-array analysis, terminal restriction fragment length polymorphism (T-RFLP) analysis and metagenomics, whilst others focus on a wide range of topic areas with analysis of methods that are applicable to each subject. There are, for example, chapters covering plant growth promoting bacteria, sulphur- and iron-oxidizing bacteria, plant pathogens and mycorrhizal fungi. The book has successfully applied this model with the majority of methodological chapters providing clear, concise and useful descriptions of the areas covered, whilst the subject-driven chapters give interesting examples of how such methodologies can be applied in the soil/rhizoplane area. Essentially the chapter authors have succeeding in producing readable summaries of the state of the art associated with their subject area, avoiding the danger of such methodological remits becoming dry.

As such this book is a useful addition to the literature and should prove valuable to students and established scientists alike entering the field for the first time.

Tim Daniell

Greenhouse Gas Sinks. Edited by D. Reay, C. N. Hewitt, K. Smith and J. Grace. Wallingford, UK: CABI (2007), pp. 290, ISBN 978-1-84593-189-6. doi:10.1017/S0014479707005571

Climate change and greenhouse gases are at last getting the media and public attention that their importance deserves. Even a superficial accounting of the different climate forcing terms quickly demonstrates that anthropogenic radiative forcing represents only a tiny proportion of the natural terms. Hence the radiative imbalance that is causing global warming could potentially be offset by a small natural rebalance. This makes it all the more important to understand quantitatively the natural gas and radiation exchange processes, and this book makes a contribution to that understanding.

The book is edited, and the 17 chapters written, by good people in their fields. Around half the content is on aspects of carbon dioxide – a proportion that mimics its relative importance in radiative forcing. There are overall reviews of natural terrestrial and marine sources and sinks, followed by more detailed investigations of more specialist topics. As often happens with this type of compilation, there is some unevenness between broad-brush overview and specialist research (e.g. a chapter on no-till farming). There is an interesting look at emissions trading, which is going to take an increasing role and for which biological sinks may be significant. The editors move on more briefly to methane, and then to nitrous oxide, before wrapping up with some thoughts on interactions.

Books of this nature have a narrow marketplace. They are not specialist enough for scientists actively involved in the topics, and not general enough for lay people. Nevertheless, there is a significant group that will benefit from having this up-to-date summary of the science, with extensive references, on their shelves.

Jeremy Colls

Seed Development: Dormancy and Germination. Edited by K. Bradford and H. Nonogaki. Oxford: Blackwell Publishing Ltd (2007), pp. 367, £99.50. ISBN 1-4051-3983-8. doi:10.1017/S0014479707005583

This is a part of the Annual Plant Reviews series, with 31 contributors from Asia, Europe and the Americas, and covers the complex molecular interactions discovered from recent research with (mainly) the model system