BOOK REVIEW

Nitrate, Agriculture and the Environment

“The world is collectively in a state of dependence on the production of nitrogen by the Haber-Bosch process...we can no more give up nitrogen than an addict can give up heroin.” And so the preface sets the scene for another book about nitrogen. This book contains 15 chapters that can easily be delved into individually or read in series. Many N experts in the arena of soil science will be able to move quickly through the first six chapters that present information on the world’s dependence on N, the chemistry, physics, and biology of nitrate, details of N fertilizer types, and the N losses associated with arable lands and grasslands. These first chapters would be an excellent introduction for someone new to the science of soil N. It was the remaining chapters of the book that I felt justified the publication of “another book on N.” In these chapters the contributing authors have presented some excellent material dealing with nitrate issues in fresh and coastal waters, nitrate and health, and the hegemony of the West as it relates to the issue of nitrate and Africa. The lead author has also delved into the politics and economics of nitrate, risk, public attitudes to science, and a coming to terms with land use. Thus this is not only a book about nitrate but a philosophical look at the relationship between scientists, the public and their politicians, and political correctness.

If the book has any shortcomings it would be in the introspective nature of some of the N data presented and discussed by Addiscott in the first six chapters, which comes mainly from work performed in the United Kingdom. However, it could certainly be argued that the principles demonstrated will apply elsewhere. Given that it is a book on nitrate, agriculture, and the environment, it would also have been nice to see more references to successful attempts at mitigating the adverse effects of nitrate on the environment. For example, the topic of nitrification inhibitors received only half a page, basically describing what they are. This is despite recent research, in grazed pastures, that has showed some dramatic reductions in nitrous oxide fluxes following their use. Other recent developments include subterranean denitrifying walls that have been successfully used to remediate nitrate in ground water flows near sensitive surface waters. But, again, such advances as these are not mentioned.

In this book Addiscott wears his heart upon his sleeve, declaring himself agnostic with regard to global warming and presenting some alternative points of view for the reader on the subject, such as the Gaia hypothesis. The history of how nitrate limits were set for drinking waters is shown to be without foundation and the case is made throughout the book that these nitrate limits could be elevated without any consequences to human health. However, Addiscott acknowledges that it is equally clear that nitrate does cause environmental problems with it being properly blamed for algal blooms and excessive benthic macroalgae in coastal and estuarine waters, while it is also a source of nitrous oxide emissions.

The information and style of writing make this book accessible and relevant at many levels: the general public, undergraduates, graduates, scientists, and policymakers alike will all find this book to be of interest and value.

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