Climate Change and the Global Harvest

Climate Change and the Global Harvest summarizes state-of-the-art knowledge on the potential impacts of climate change on agriculture. This is a huge task for a single book, but the authors have managed to distil the many thousands of publications relevant to this topic into a very concise and readable form.

The book begins by introducing the nonspecialist to the causes of climate change, and reviews the main climate change drivers and impacts. It then goes on to review all major aspects of climate change impact on agriculture in detail. The scope is very broad indeed—the authors consider agricultural greenhouse gas emissions; the effects of raised CO2 and climate change on crop yield (discussing in some detail the effects on vegetation); possible impacts on pests, weeds, and diseases; impacts on soils; and the effects on water resources and sea level rise. The final four chapters expand the science described in earlier chapters to the global level, providing an analysis of impacts of climate change, then examining in detail the regions at greatest risk from climate change and possible implications for future food security, and finishing with a chapter on adaptation, economics, and policy.

Some of the information is available in concise form elsewhere; for example, much of the information in the general introduction can be found in the IPCC Climate Change 1995 book, but the majority of the information provided is collated in this concise form for the first time. Given the breadth of the book, it is not surprising that there may be too few details to satisfy the interests of specialists in any particular area, but the book has an excellent bibliography (a single section organized chapter by chapter) that refers the reader to the most important recent reviews, and to a selection of the original papers. As such, it is a very useful book for students and researchers alike.

Already, I have found this book enormously useful as an introduction to the areas in which I am not a specialist, and as a launch point into the relevant literature in these areas. I am sure I will make much use of this book in years to come.—PETE SMITH, Soil Science Department, IACR-Rothamsted, Harpenden, Herts, AL5 2JQ, UK (pesmith@bbsrc.ac.uk).

Soil Quality: For Crop Production and Ecosystem Health

Soil quality, its productivity and environmental capacity, is an important issue of the modern world. As the limited extent of prime agricultural land, consumption patterns, and environmental concerns (e.g., urbanization, industrialization, and increased susceptibility to a wide range of degradation processes such as erosion, desertification, salinization, pollution, etc.). It is important to the environment because of its role in the aquatic-atmospheric-terrestrial interface and in the greenhouse effect. Being at the aquatic-atmospheric-terrestrial interface, soil quality and soil health is also presented at different levels of biological organization. Similar to soil quality, soil health is also presented at different levels of ecosystem organization.

The second section includes six chapters that further explore the different attributes of soil quality. These chapters thematically address ecosystem processes (the effects of soil quality, and effects of soil redistribution processes) on soil quality. Important soil attributes discussed include soil capacitance and structure.