

Book review

Soil Science and Sustainable Land Management in the Tropics

Eds J.K. SYERS and D.L. RIMMER. Published by CAB International, Wallingford, Oxon, UK, 1994. 320 pp. £45. ISBN 0 85198 874 1.

'Sustainable Land Management has emerged as an issue of major international concern'. The theme of sustainability is central to this book with specific reference to the relationship between soil science and sustainability.

The book is a compilation of papers presented at a meeting at the University of Newcastle upon Tyne in 1992 under the auspices of the British Society of Soil Science. The theme for this meeting was 'Sustainable Land Management in the Tropics: what role for Soil Science?' The meeting brought together specialists in various aspects of soil science and a wide range of other disciplines including agronomy, economics, modelling, Quaternary geology and natural resource management.

The focus on tropical environments recognises the accelerated degradation, burgeoning population pressures and scarcity of suitable areas for agricultural expansion in these specific environments. While agriculture in tropical and sub-tropical Australia is not under the extreme pressures experienced by many third world nations, the principles of sustainable production systems are equally relevant.

Chapter 1 is basically an introduction where soil improvement as opposed to soil degradation is considered in relation to sustainable land management and the need to maintain the integrity of the soil resource base. Chapters 2–10 cover aspects of soil and land resource assessment and the practical problems of soil erosion and conservation. Chapter 2 considers the amount and suitability of land resources on a global scale. It further develops the idea of equity in relation to access to land resources and the sustainability of land management systems. Chapter 3 describes the statistical analysis of sustainability models. Chapter 4 outlines the limitations of soil science in formulating a more complete picture of soil conservation work. Chapters 5–10 examine a range of case studies in 3 tropical environments and include an evaluation of 'fragile lands' irrigation and strategic water models.

In Chapters 11–17, aspects of soil biology and soil fertility are discussed. Included in these chapters are data relating to nutrient acquisition and flows, organic matter dynamics, biological N fixation and on-farm trials involving leys and a range of perennial legumes.

In Chapter 18, the difficult areas of sustainable land management and rigorous economic analysis are explored. Chapter 19 sets out a range of soil science research priorities emphasising a multi-disciplinary approach. In Chapter 20, the social and political framework, as it affects soil science, is discussed.

This book suffers, as do most multi-authored books, with a range of styles, approaches, philosophy and relevance. For many readers of *Tropical Grasslands*, the reality of third world subsistence agriculture will be of interest but of little relevance. Extensive grazing systems and pasture productivity are not a feature of farmers seeking food security.

The book tries to balance specific research methodologies, locations and results within the bigger national and global picture of both an economic and a social context. This is somewhat confusing with varying levels of information, some specific and focused, adjacent to chapters dealing with larger cultural and political concepts.

One common theme throughout the book was the emphasis on farmer involvement at all stages of sustainable farming system development. A management practice must not disadvantage the farmer but rather offer long-term resource protection and stable returns if it is to be widely adopted.

For people with an interest in sustainability issues and tropical agriculture, this book would be a useful library addition. The extensive references are from studies throughout the world particularly the tropical regions of Asia, Africa and South America, and offer extensive recent, published information useful to anyone with an interest in contemporary issues in tropical agriculture.

G.T. Dwyer
QDPI