

Trees, water and salt. An Australian guide to using trees for healthy catchments and productive farms

Richard Stirzaker, Rob Vertessy, and Alastair Sarre (2002).
Joint Venture Agroforestry Programme (JVAP), Australia.
168 pp., ISBN 0 642 58308 0.
Rural Industries Research and Development Corporation (Publisher)
RRP AUD\$29.70.

TODD EDWARDS¹

READING the Foreword and Preface of *Trees, Water and Salt*, I was pleasantly satisfied by the promised content of this, the first publication in a series from CSIRO addressing dryland salinity. This is not a book of "Doom and gloom", all too often associated with salinity, but is a forward thinking attempt to combat a complex problem. The authors suggest that the best way to curtail or stop salinity would involve the re-vegetation of entire catchments with native species. *Trees, Water and Salt* recognizes the agricultural and economical impracticalities this option proffers, accepting that some salinity will occur as the price of our current consumer demands. *Trees, Water and Salt* suggests that to help m     salinity, land managers must design and implement different agroforestry systems.

Trees, Water and Salt is aimed at an audience ranging from managers of catchments, forests and agriculture to environmental management students and farmers. The language of the book is correct for such an audience, but for those from a non-technical background there is a reasonable glossary. The book is structured well, explaining the principles of catchment hydrology, the role of trees and salt balance, different agroforestry designs, species selection and the balance of productivity versus salinity prevention. The book is visually attractive with plenty of glossy colour photographs and an orderly graphical theme throughout. Numerous relevant and up-to-date tables and figures are used effectively to explain complex concepts. In addition, colour coded page corners help the reader navigate the book.

The introductory chapter of *Trees, Water and Salt* sets out to explain what questions will be addressed in the book, asks what objectives should be considered for agroforestry designs and gives a brief introduction to salinity. In addition, there is a concise synopsis of each chapter to come. The following two chapters set out to educate the reader on the principles of catchment hydrology and balance of water and salt in catchments. These chapters provide the knowledge to understand the book, and although simple at first, the concepts become complex, with

difficult terminology and the natural complexity of the issues being developed. Topics covered include water balance, water movement, salt balance, role of trees, types of catchments, and examples of the various catchments. Despite the complexity of issues addressed, a good foundation of knowledge is seeded, and even a na     reader is in a good position to go forward with the book.

Chapters four to seven, discuss the four alternative designs of agroforestry systems. The chapters follow a similar theme: the physical catchment parameters are set, background information is discussed, designs are explained, examples are given with advantages and disadvantages, and finally implications of designs are summarized. Designs are complex and multi-variant, due to the need to tailor them to site conditions and set objectives of the catchment in question. Various experimental trials, models and situations are given for each agroforestry design, including an examination of the implications and success of each. The four designs discussed include short rotation woodlots on agricultural land, tree belts on hill slopes, mixing tree belts with agriculture, and planting over shallow, saline water tables.

Choosing the agroforestry design is not the only problem. Chapter eight explains what tree species are suitable, dictated by design objectives (what is wanted) and physical condition of catchments. Species tables are given, but I feel they are unnecessarily compressed with too much information. This aside, the chapter provides clear guidelines for species selection, management and site preparation.

The final chapter of the book summarizes what has been discussed. Re-vegetation options are reviewed in a questioning and provocative explanatory piece, suggesting how to implement agroforestry designs. An interesting five strand framework is presented for the application of trees in the fight against salinity, no doubt likely to be a theme through the published series.

In conclusion, *Trees, Water and Salt* is a well thought-out and planned book. Although the jargon and complexity of concepts are at times difficult, the authors have produced a book that is suited to its intended audience. One minor criticism of the book is perhaps a lack of commitment to statements and theories; the authors tend to "verge on the side of caution" rather than risk being found wrong at a later date. Maybe this is a wise move as salinity research is still in its infancy, and predictions are controversial. One of the major credits of this book is the consistent optimism by the authors. After reading this book I am keen to see the next in the series.

¹School of Natural Sciences, Edith Cowan University, Joondalup, Western Australia, Australia 6027.