BOOK REVIEW

"SOILS OF PAPUA NEW GUINEA"

P. Bleeker (1983). CSIRO and ANU Press, 352 pp. Aus$14.95.

Soil is one of our most important natural resources. It must be managed carefully so that our children and their children are able to grow their food crops and obtain an income in the future. The key to wise management of soil is an understanding of soil itself. Therefore it is good to have a book that contains much of our present scientific knowledge of the soils of Papua New Guinea.

As a soil scientist I found the book to be interesting, readable and a good summary of the soil research which has been carried out on Papua New Guinea soils.

The book has 16 chapters and the first deals with the environment of Papua New Guinea. It covers landforms, geology, climate and its effect on soils, and vegetation. Chapter 2 is entitled Soil Classification and Mapping and gives a good overview. The United States Department of Agriculture scheme of Soil Taxonomy is used and this chapter contains a good introduction to its use in Papua New Guinea. The limitations of Soil Taxonomy are discussed in this chapter together with its advantages.

Chapters 3 to 10 cover the eight soil orders which occur in Papua New Guinea. The 61 great soil groups are described in terms of morphology, genesis, occurrence association, fertility and land use. These chapters also contain useful maps and diagrams of the distribution of the soils together with interesting photographs. However, the tables on chemical fertility are a little difficult to understand. They are, in fact, tables of the number of soils in a given fertility class rather than actual chemical data.

Chapter 11 contains useful information on the assessment of land for various crops. Chapter 12 has a good discussion on soil erosion and highlights the need for further study of erosion in Papua New Guinea.

Chapter 13 brings together the studies on weathering of soils of Papua New Guinea and chapter 14 deals with primary and micro nutrients (incorrectly called minor elements). Chapter 15 is an interesting chapter on soil microrelief and chapter 16 is a discussion of traditional food crop agriculture in relation to soil properties.

The book contains very few errors. Perhaps the most serious is the statement on p. 236 that fertiliser applications may do little to rectify phosphorus fixation problems. Work by Sanchez and associates, in Brasil and Peru, and others have shown that it is possible to overcome phosphorus fixation on soils containing iron oxides. However, there may be a continuing fixation problem in Andepts which contain large amounts of allophane.

The author uses total nitrogen levels together with C/N ratios to estimate the nitrogen status of the soils. One has to be very cautious in using the data in this way since plants use a very small part of the total soil nitrogen. Nitrogen deficiency may be quite widespread in food crops, particularly maize, as shown by a number of DPI trials in Papua New Guinea.

The author has given an excellent review of the soils of Papua New Guinea. The book will be essential for those who

plan to do research on these soils in the future. It is highly recommended for soil scientists and libraries dealing with soils.

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