BOOK REVIEWS

Sand and Water Culture Methods used in the Study of Plant Nutrition


Since its appearance in 1952, Technical Communication no. 22 of the Commonwealth Bureau of Horticulture and Plantation Crops has come to be recognized, at least in the English language, as the standard reference for those interested in the development of sand and water culture techniques used in plant nutrition research throughout the British Commonwealth, parts of Europe, and the United States. The Second Edition of this valuable work will strengthen even further the unique position it occupies. Most (393 of its 477 pages of text) of the book is devoted to a general review of the subject. A second part deals in somewhat more detail with the procedures used by the author at Long Ashton.

The completeness of treatment of the subject matter is best attested by the number of references. Their listing, with complete titles and cross-indexing, requires 55 pages, which gives an estimated number of 1,800 references. The earliest reference date noted was 1909, the latest, 1964. They are primarily from Great Britain and the United States, but papers from German, French, Russian, and Japanese publications are also included. The section devoted to the historical development of plant culture techniques is much longer than in the First Edition.

The book represents very much more than a historical accounting. It provides in great detail, and with numerous drawings where appropriate, information on every aspect of plant nutrition research. Likely problems that might be encountered are presented, and the advantages and disadvantages of many of the procedures employed and materials used are discussed. A useful feature of the book are the conclusions and summaries given after some of the topics are discussed in detail. It will serve well the needs of both the researcher actively engaged in plant nutrition studies as well as the teacher seeking material for classroom presentation.

With one important exception, the headings into which the subject matter is divided are identical to those of the earlier edition. However, many sections have been completely revised, and the more recent findings have been added to practically all of them. A 30-page section on the “Assessment of contamination and the limitations of micronutrient deficiency studies” is a new and valuable addition to the Second Edition. Much of the material which was previously reviewed by R. E. Thiers and R. L. Mitchell is included in this section, but the results of some of the studies at Long Ashton are also presented.

In the reviewer’s opinion, two features of the book could be improved. I found that it took some time to get accustomed to the numbering system used for chapters, sections, and subsections, and the designation of topics in the index in this manner. Searching for topics in the text designated by this numbering system is much slower than finding them by page number designation.

A second shortcoming of the book is the kind of binding used. Unless the copy I received was not typical, the pages are not bound securely and consequently will pull loose quite readily. I hope this is not generally true as I believe that the book will be subject to heavy use in any laboratory where such studies are being conducted.—V. V. Rendig, Dept. of Soils & Plant Nutrition, University of California, Davis.

Diagnostic Criteria for Plants and Soils


Some twenty staff members at various University of California campuses and experiment stations assisted the editor in compiling this well-organized reference book on diagnosing nutrient or toxicity problems. Thirty-four elements are treated in separate chapters. The general pattern of coverage in each chapter lists plant criteria useful in diagnosing the status of the element, tissue analysis values, soil criteria useful in diagnosing the status of the element, and methods of controlling a deficiency or excess supply of the element for specific crops. The text is usually accompanied by one or more tables giving values for various crops.

Following this are three additional chapters covering total salt and water quality appraisal, alkali and saline soils, and organic soil toxins.

The appendix includes a lengthy table assembled on a crop basis giving tissue analysis values useful in indicating nutrient status, a table summarizing the effects on a plant basis soil-testing methods and criteria, and a table listing suggested foliar sampling techniques for a number of crops. A fourth table lists examples of indicator plants for deficiencies or excesses of various elements. Also included in the appendix are seven color photos showing nutrient disorders, an author index for literature references, and a subject index.

This is a worthwhile contribution and is being sold at the actual cost of production.—RCD.

Methodology of Plant Eco-Physiology


More than 120 specialists gathered at Montpellier, France, in April 1962 to discuss the relationships existing between plants and their physical and biotic environment. The present volume contains the texts of 88 papers presented.

In general, these cover three main fields: environmental factors, physiology of plants considered individually, and physiology of the plant cover. Special emphasis is given to the description of methods to make possible the study of the physiological behavior of the plant cover considered as a whole. In addition to details on measuring techniques, each paper concludes with a bibliography. All papers are in English or are summarized in English.

Discussions are in both English and French.

Soil scientists interested in soil-water-plant relationships and measurements will find a number of the papers of interest.—RCD.

The Soils of Iran


The senior author is Deputy Chief of the Land & Water Development Div. of FAO and the junior author is Director, Soils Institute, Tehran, Iran. The book includes a general description of the country including geology, climate, agriculture, soil classification, and methods and procedures used in this study. The soils of Iran are divided for coverage into soils of the plains and valleys, soils of the Plateau, soils of the Caspian Piedmont, and Soils of the dissected slopes and mountains. Also included are comments on use and management of the soils and soil factors limiting agricultural production, plus a list of soil science terms and definitions. The material in the appendix includes maps and reports on soils, climate, geology, and soil correlation with neighboring countries.—RCD.

Soil Survey Papers No. 2

Collection and Preservation of Soil Monoliths


This bulletin covers the collection and preservation of monoliths from sandy soils and ripened clay soils above and below the