

# NEW BOOKS

## Mineral Nutrition of Fruit Crops

Edited by NORMAN F. CHILDERS. 907 pages. Horticultural Publications, Rutgers University, New Brunswick, N. J. 1954. \$10.00. Reviewed by HERMAN J. REITZ, Florida Citrus Experiment Station, Lake Alfred, Fla.

This encyclopedic book is an attempt to review and summarize the presently available literature concerning the mineral nutrition of commercially important plants.

The main body of the book consists of thirteen chapters, each devoted to a review of the literature concerning nutrition of a certain fruit crop or a group of more or less related crops. Each chapter is written by a crop specialist or group of specialists now active in research with the individual crop. Chapters are devoted to the apple; avocado and mango; blueberry and cranberry; bush fruits; cherry; citrus; grape; edible nuts; peach; pear; plum, prune, and apricot; strawberry; and tung. The content of these chapters varies considerably. All chapters con-

tain a review of the known effects of various supplies of the essential mineral elements on the growth and fruiting of the crop.

Many chapters include sections on such subjects as species and climatic limitations, soil aeration and drainage, or other factors. Some of these stray appreciably from the announced subject. Most of the discussions are well written reviews; some are unnecessarily long and somewhat repetitious. The chapter on tung is especially good. Each chapter is followed by an extensive list of references.

Five chapters are devoted to specific fields rather than specific crops. In "Leaf Analysis of Citrus" is found an excellent presentation of the case which can be made for leaf analysis as a measure of nutritional status. The application is made to citrus, but the outline of the discussion might well be used as a guide for work with other crops. Two chapters are devoted to the relatively new special fields of isotopic tracers and chelated metals. In the former, the discussion is limited to the general methods of use of isotopic tracers, and the place of isotopes in nutritional studies. In the second, the originators of the application of chelated metals to field plants have discussed this new subject more exhaustively than in any other place.

A fourth chapter is devoted to the efficient design and statistical analysis of experiments. Written by workers with long experience with fruit trees, the discussion of preliminary considerations in planning experiments and choice among the available experimental designs should encourage the novice in biometrics to improve the efficiency of his field work.

A fifth chapter consists of a compilation of analytical data on mineral contents of fruit plants. The bulk of this chapter consists of a tabulation of the analyses reported in the literature. Data listed include the plant species, element involved, type of culture, date of sample, tissue sampled, analytical data in relation to symptoms, and source of information. Much of value must necessarily be omitted in such a compilation, but the table forms a quick key to the literature.

A special photographic section of 132 pages is devoted to symptoms of nutritional deficiencies, toxicities, and other related problems. All illustrations are in black and white. Most of these are informative, but in absence of color, many essential features cannot be adequately brought out. Some general views are of questionable value, since

the over-all poor condition of trees can result from many factors.

In general this book is a significant effort in the field of horticulture. Its publication reflects the increasingly objective approach being taken in nutritional studies of horticultural plants in contrast to the empirical approach of the past.

The book should be of value to all workers in the field, but of special value to students, and beginners in research. Many teachers also will welcome and use the reviews of the widely scattered literature.

## The Vitamins. Vol. II

Edited by W. H. SEBRELL, JR., AND ROBERT S. HARRIS. xiii + 766 pages. Academic Press, N. Y. 1954. \$16.50. Reviewed by CONRAD A. ELVEHJEM, University of Wisconsin, Madison, Wis.

This is the second of a series of three volumes dealing with the known vitamins. It continues the very high quality characteristic of the first volume. This volume covers the following vitamins: choline, vitamin D group, essential fatty acids, inositols, vitamin K group, niacin, and pantothenic acid.

The material in each chapter is covered by experts in the field, for example seven different workers have contributed to chapter 2 dealing with pantothenic acid.

The organization and presentation of the material are remarkably consistent from chapter to chapter. The only obvious variation is the use of photographs to show typical deficiency symptoms in the case of choline, vitamin D group, and essential fatty acids and the complete lack of photographs in the other chapters.

As one who has had the good fortune to follow rather closely the development of new knowledge concerning the metabolic functions of vitamins it is especially stimulating to read the extensive discussion of the biological systems in which each of the vitamins is involved. In fact, in many parts one might well assume that he was reading a text in basic biochemistry. This approach to vitamins is of real significance because it is only when we have a thorough knowledge of their metabolic role that we can intelligently use vitamins in medicine and nutrition.

As in Vol. I the discussion is well documented and the subject index and author index are excellent.

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