NEW BOOKS

Fertilizer Technology and Resources in the United States

Edited by K. D. JACOB. xvii + 454 pages. Academic Press, Inc., 125 East 23rd St., New York 10, N. Y. 1953. $8.50. Reviewed by G. L. BRIDGER, Iowa State College, Ames, Iowa.

This book is Volume III of a series of monographs of the American Society of Agronomy. The authors of the various chapters are J. A. Chucka, E. D. Crittenden, R. W. Cummings, M. F. Gribbins, G. T. Harley, H. A. Huschke, K. D. Jacob, M. H. Lockwood, A. L. Mehring, W. L. Nelson, J. F. Reed, H. B. Siems, G. V. Taylor, R. P. Taylor, and J. H. Walthall.

The first chapter describes the role of fertilizer technology in a changing world and shows how fertilizers play an essential part in world food production. Increasing food production to meet demands of increasing population and underdeveloped areas of the world must be achieved by increased use of fertilizers, since productive land area is limited. There is no shortage of the basic raw materials for fertilizer production, although there may be important changes in the technology used.

Several chapters are devoted to fertilizers containing the major plant food elements—nitrogen, phosphorus, and potassium. Statistics on world and United States resources of these materials, their production and consumption, and use trends are presented in considerable detail. The major industrial processes for conversion of the raw materials into finished fertilizers are described qualitatively. The basic chemistry and operating conditions for most of the processes are given, but there is seldom sufficient quantitative information for plant design or cost studies. The manufacture of superphosphates and phosphoric acid is presented in somewhat more detail than other processes. Only one of the several modifications of the process for urea production is described. The vacuum crystallization process for ammonium nitrate is not mentioned. Many new processes still in the research and development stage are described.

A chapter is devoted to fertilizers containing calcium, magnesium, and sulfur and another chapter to special fertilizers for specific soils, crops, and a number of other applications.

The book will be useful in giving an excellent and complete background in fertilizer manufacturing problems. It should be of interest to fertilizer manufacturers and agriculturists, and useful for specialized university courses. There is probably no other volume that brings together in such a complete form the information covered. The book is well written and coordination is good considering the large number of authors.

It is unfortunate that it was necessary to omit chapters on trace elements and fertilizer grades and ratios. Also, more space could have been devoted to the direct application of anhydrous ammonia, which is a rapidly growing field. A discussion might also have been included of the recent sulfur shortage and possible alternative processes to those requiring sulfuric acid for producing fertilizers in the event of such shortages in the future.

Cocoa Cultivation Processing Analysis

EILEEN M. CHATT. xvi + 302 pages. Interscience Publishers, Inc., 250 Fifth Ave., New York, N. Y. 1953. $8.50. Reviewed by PETER BIRNSTIEL, Hershey Chocolate Corp., Hershey, Pa.

This book includes the most up-to-date and pertinent information on this important economic crop and gives anyone interested in the industry a source of knowledge on the agricultural, biological, technological, and interrelated factors necessary for the production of the familiar commodities made from the cacao bean. The contents are so organized as to make it a handy reference book.

The author begins with a history of cocoa which includes the origin of the cacao tree and its cultivation by the Indians of Mexico and Central America before the discovery of the New World. Following the chapters on the botany and the conditions necessary for the cultivation of the cacao tree is one giving an adequate explanation of the various diseases and pests which have caused so much devastation on plantations and in warehouses. Interesting are the chemical, biological, and physical changes which take place during the maturing of the fruit and the subsequent processes of fermentation and drying of the cacao beans.

The next portion of the book deals with the technology of the cacao bean from the time it enters the chocolate manufacturing plant. A flow sheet indicates the usual sequence employed in the manufacture of cocoa and chocolate, and descriptions are given of the various types of equipment used to accomplish these processes.

Defects which occur to chocolate products during storage are briefly explained.

Of particular interest to the chemist is the chapter on the Methods of Analysis of Cacao Products. These are either briefly described by the author or references given to published work.

Concluding the book is a chapter on the cocoa and chocolate industry, giving information on the producing countries, world production, imports and utilization in consuming countries, and the situation up to 1951–52.

Throughout the book, the author gives many footnotes on references which are of special interest since they not only designate the source, but also tell where additional information may be obtained.

That's Morley, he's with our insecticide research group