BOOK REVIEWS

RADIOISOTOPES IN BIOLOGY AND AGRICULTURE
Principles and Practice


This is an admirable volume containing a wealth of information and advice for those investigators in biology or the agricultural sciences who may be considering experimentation involving radioisotopes. The author takes a realistic viewpoint. He is not an evangelist advocating the adoption of radioisotope techniques as the panacea for all investigational difficulties in these fields. Through examples drawn from diverse fields he has attempted to explain the advantages and disadvantages inherent in the use of radioisotopes, their possibilities, and their limitations. Later chapters deal with such topics as the practical problems of health physics, the facilities required for work with plants and animals, the characteristics of selected isotopes most likely to be useful in biological studies, autoradiography, radioactivation analysis, and ancillary methods such as paper chromatography and ion exchange. The book concludes with a glossary of selected terms in nuclear science and a summary of radioisotope preparations available from the Oak Ridge National Laboratory.

The book is somewhat uneven with respect to details of procedures, and the reasons for the author’s choice of procedures described fully are not always apparent. In many cases it is probable that the selection was somewhat arbitrary, but in keeping with the objective of supplying sufficient illustrative examples so that an investigator can determine the suitability of a particular procedure to his particular problem and if it is within the scope of his facilities and experience. Applications in soil science and plant physiology are perhaps less well covered than those in some other areas. Even so, this book should be of great value to soil and crop scientists contemplating work involving radioisotopes, and particularly if their problems lead them beyond the rather well-worn paths of P 32—A. G. Norman

POTASSIUM SYMPOSIUM—1954

Compiled by the International Potash Institute—Bern, Switzerland. 445 pages.

This book contains 21 papers given at the annual meeting of the Board of Technical Advisors of the International Potash Institute at Zurich. The meeting was divided into four sessions: potassium in the soil; potassium in the organisms; potassium in agriculture; and potassium analysis. Papers were presented by many of the leading agronomists from several countries of Europe. While the papers are in French, German, or English all have an English summary. The purpose of the papers was to outline the position of our present knowledge—chemical, physiological, and agricultural—in respect to potassium. Hence they covered a wide field and reviewed a number of basic principles.

In the session on potassium in the soil, papers dealt with physico-chemical properties, geochemistry, clay minerals releasing potassium, and forms of potassium. Several subjects were covered in the session on potassium in living organisms including demands of microorganisms, accumulation, functions in animals, and function in plants. In the program on potassium in agriculture, the great need for potassium was stressed. Considerable increase in potassium usage has taken place in recent years and in Belgium and Denmark about 60 kg. of K₂O per hectare is being applied. Soil tests and field trials have contributed greatly to these increases. The use of potassium fertilizers in Switzerland is comparatively low as farmyard manure supplies about 90% of the need.

Flame photometry and chromatographic methods of analysis were among the subjects covered in the session on analysis. K. A. Bonnieroff from the University of Helsinki provided an outline of some techniques that are employed in his laboratory for routine analyses. V. Morani indicated the possibilities of successive extractions in differentiating between soils with a low reserve of potassium and those with a high reserve. T. Walsh brought out some excellent points on the possibilities and limitations of deficiency symptoms and plant analyses in diagnosing potassium needs. The International Potash Institute is to be commended for bringing together this group of scientists for these objective discussions.—WERNER L. NELSON

WATER

The Year Book of Agriculture 1955


The 1955 year book of the USDA is devoted to all aspects of the subject of water. It contains 95 chapters written in non-technical style by 149 specialists in USDA, the state agricultural colleges and experiment stations, and other private and federal agencies. Among the subjects covered are: the importance of water in history; the need for water of people, animals, and plants, weather cycles, "cloud seeding"; desalting sea water, water and erosion; care of watersheds; water laws; flood control; water for forest and range lands; irrigation; drainage, watershed maintenance for better fishing; wetlands and water fowl; dry land farming; use of waste water by industries; water for gardens and lawns; rural drinking water supplies; sewage disposal; conservation, and research. It contains many excellent illustrations and useful charts and graphs. Many members of the American Society of Agronomy and Soil Science Society of America are among the contributors to the volume. Copies are available through members of Congress or from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at $2.00 per copy.

EL SUELO Y LOS CULTIVOS DE SECO
(The Soil and Dry-farming crops)


In the first 7 of the 28 chapters of "El Suelo y los Cultivos de Secano" a discussion is presented of the fundamental aspects of soils: origin, physical and chemical properties; movement and control of water; principles of fertilization; and organic matter relationships. A chapter is included on land preparation techniques.

It discusses clay mineralogy, weed control, polyelectrolytes, etc. The author stresses the effectiveness of polyelectrolytes in improving texture, plowing and drainage, reducing compaction and evaporation, and increasing water retention of soils. Other investigations have shown that the role of these soils conditioners has been somewhat exaggerated.

Four chapters are devoted to the botany, physiology, varieties, and cultivation of wheat. The rest of the book includes discussions on barley, oats, rye, legumes, diseases, and insect pests.

Crop rotations in various dry farming regions of Spain, dry farming systems, and genetic improvement of crops are discussed.

The book is a good contribution to Spanish scientific literature. Much good information can be obtained from it by students and farmers of dry lands.—JUAN BONNET

MENTION

A Simplified Handbook on Soils, Phosphates, and Mixed Fertilizers, by Vincent Sauchelli, Director, Agricultural Research, Davison Chemical Co., Division of W. R. Grace & Co., published by the company, Baltimore, Md. This 92-page brochure deals with fertilizer chemistry in lay terms and is designed to give in simple language practical information on soil fertility and crop nutrition. Included are soil moisture supply, crop water requirements, how plants feed, chemical fertilizers, plant constituents, plant nutrients, humus, soil amendments, trace elements, use of fertilizers, and other topics.