BOOK REVIEWS

Ocean Disposal Systems for Sewage Sludge and Effluent

In 1981, the National Research Council conducted a symposium to assess the state of knowledge of ocean use for waste disposal. One of the results of the symposium was a request by the National Oceanic and Atmospheric Administration (NOAA) to the Marine Board to identify concepts for the processing and transport of domestic wastes for ultimate disposal in the ocean. The committee established by the Marine Board considered treated sewage sludge and effluent and its transport to, and release into, the sea from coastal USA communities. This book is the final report of the committee which included experts in ship and undersea pipeline engineering, municipal waste treatment design and operation, physical oceanography, environmental sciences, ocean geochemistry, ocean engineering, and naval architecture. The four major chapters include: "Wastewater Characteristics" which details concentrations of chemical constituents found in wastewater and sludges and primarily focus on Los Angeles' Hyperion sewage treatment plant which discharges into the Southern California Bight; "Analysis and Design Objectives for Disposal Systems" which gives an excellent overview of ocean processing and wastewater constituents; "Transportation Systems: Comparative Cost Analysis and Research", an economic study of several methods of transporting sludge to the ocean disposal site which considers self-propelled ships, barges-in-tow, articulated tug-barges, and rubber barges-in-tow and computes costs as a function of travel distance; and "Application to Two Coastal Areas" which demonstrates how the information presented in the previous chapters can be applied to two ocean disposal cases: (i) a wide and shallow continental shelf, as found along the mid-Atlantic or Gulf states, and (ii) a narrow, rapidly deepening shelf, characteristic of the West Coast.

This book will be of interest to anyone in the waste disposal field, but will be particularly useful to planners and those in government agencies involved with ocean disposal of wastes. As indicated in the Preface, the study reported here did not use risk assessment to evaluate the relative merits of ocean disposal vs. other options. However, the reader will find the book useful in understanding the scientific, engineering, and economic realties and constraints of ocean disposal of wastes and this knowledge can aid in the risk assessment process which ultimately must be conducted if ocean disposal is to become an acceptable disposal practice.—TERRY J. LOGAN, Agronomy Department, The Ohio State University, Columbus, OH 43210.

Interpretation of Aerial Photographs

Authors Thomas Eugene Avery and Graydon Berlin improved an already fine contribution and created a comprehensive textbook for the instructor and student. Previous editions enjoyed long-term appeal for clear presentation of photo interpretation, photogrammetry, and terrain analysis. The enhancement and addition of chapters detailing nonphotographic sensors, geographical information systems, and digital image processing has made the new edition a synthesis of basic concepts. The resulting product can be favorably compared with popular contemporary texts.

Several features enhance the overall effect. The format is larger, with section headings and characters in bold, clear type. Black and white photographs are printed with improved contrast making them easier to interpret. The inclusion of images from advanced sensors such as airborne scanners, Landsat thematic mapper, and shuttle imaging radar helps to demonstrate the latest capabilities. In particular, images used to present digital enhancements will be valuable for learning and instruction.

This book is recommended for most audiences including professionals who appreciate previous editions. The improvements mark this edition as an excellent textbook, and institutions should consider its high quality and clear presentation of modern and traditional concepts.—JOHN G. LYON, Department of Civil Engineering, The Ohio State University, 2070 Neil, Columbus, OH 43210-1275.

The Chemistry of Allelopathy: Biochemical Interaction Among Plants

This record of the proceedings of the first ACS (American Chemical Society) symposium on allelopathy is authoritative, well written, and up-to-date review. This book contains practical material concerning some of the chemistry, biochemistry, biology, and ecological roles of secondary products produced by plants. The careful organization, systematic approach, and breadth of scope of the volume make it a valuable resource for graduate students, faculty members, and government and industrial scientists in the agricultural, biological, and chemical sciences. Alonzo C. Thompson, editor and organizer of this symposium, is with the U.S. Department of Agriculture at Mississippi State University and has done an excellent job of editing the book. The book is profusely illustrated with structural formulas, tables, and figures—only a very few contain errors. The text has been well, if not perfectly, proofread.

The reader will find two major challenges to agricultural researchers stated in the first chapter by Alan R. Putnam: to minimize the negative impact of allelopathy on crop growth and yield, and to exploit allelopathic mechanisms for additional pest control on crop growth strategies. The chapter by J. M. Chandler on economics of weed control in crops indicates that losses approximate $15 billion annually. Of the 29 chapters remaining, 13 deal with plant-plant interactions, two with plant-microbes, one with plant-parasites, one with effects on plant-water, and two with plant-soil interaction. Five chapters discuss aquatic systems, covering such diverse subjects as oxygenated fatty acids by Robert T. van Allen et al. and allelopathic substances from marine algae by R. E. Moon and D. F. Martin. The mechanism of allelopathic action has not been studied much because it is a new and complex field, but in the bioassay by G. R. Leather and F. A. Einhellig it is shown that the Lemma assay could be very useful for following allelopathic activity during compound identification and determining the biochemical mechanism(s) of plant growth inhibition by allelochemicals. The book ends with four chapters on the synthesis of strigol and some analogs; strigol is an effective germination stimulator for witchweed. However, this overemphasize on strigol and aquatic allelopathy may give the reader an improper impression.

While it is indexed adequately, the book should be of wide interest to agricultural scientists, policy makers, and ecologists as they strive to learn more about the naturally occurring secrets of the plant defense system.—GEORGE R. WALLER, Department of Biochemistry, Oklahoma State University, Stillwater, OK 74078.