

Soil Science

Step-by-Step Field Analysis

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Preface

This book provides the step-by-step guidance on how to conduct specific activities related to improved natural resource management. Each chapter provides knowledge that will assist natural resource managers in balancing land management objectives, such as agricultural intensification or land development, with long-term sustainability.

A unique feature of this book is that it provides step-by-step procedures for professionals, without a lot of background theory. The intended audience includes crop consultants, government officials, agronomists, environmental consultants, students, and teachers. Readers will especially benefit from the option to obtain individual chapter downloads if they are looking for information on a specific topic. “Methods” books abound, but most are geared toward laboratory analysis and include a lengthy discussion of theoretical issues related to each technique. Such a thorough analysis sometimes hinders usefulness for real-life applications.

Some chapters are targeted primarily toward agronomists and producers. Learning objectives include removing erroneous data from yield monitor maps, reducing sampling error within a field for soil samples sent to a testing laboratory, and addressing within-field variability of soil properties, such as pH, electrical conductivity, nutrient levels, and salinity, and how they affect crop growth.

Other chapters will be of most interest to environmental consultants. Tips are given for evaluating a site for specific end uses, installing wells and piezometers and monitoring water table information, safely obtaining soil samples and how to describe a soil profile, and surveying using simple or sophisticated equipment.

The remaining chapters feature topics that are important for a variety of applications, for use by a wide range of natural resource professionals. These include how to evaluate overall soil quality and evaluate soil in the field for water repellency, soil density and water content, water infiltration into soil, soil temperature, and rainfall rate.

Several individuals contributed to the concept of this book and the appropriate soils topics that should be included: Michael Vespraskas, Tom Sauer, Aziz Amoozegar, John Simon, Seiglinde Snapp, Neal Eash, Ty F erre, Jeff Herrick, and Doug Karlen. After our initial list of topics, we provided an online survey to get input from certified professionals of the American Society of Agronomy and the Soil Science Society of America (Certified Professional Soil Scientists, Certified Professional Soil Classifiers, Certified Professional Agronomists), the Association of Women Soil Scientists, and the turfgrass division of the Crop Science Society of America. The results of this survey were incorporated into the final chapters chosen for inclusion, as well as format of the book. Each chapter was reviewed by two or more individuals, and we appreciate their constructive criticism.

Sally Logsdon, Dave Clay, Demie Moore, and Teferi Tsegaye, editors