
Preface

Accelerated soil erosion has plagued the earth since the dawn of settled agriculture. However, it became a major issue in the United States during the 1930s because of the increasing awareness about its adverse impact on sustainable use of natural resources, especially with regard to agricultural productivity. During the 1970s and 1980s, soil erosion was an issue with regard to its impact on water quality with particular reference to nonpoint source pollution. With increasing demand on the limited prime soil resources and shrinking per capita arable land area in densely populated regions of the world, erosion became a global issue during the 1990s with regard to its on-site impact on productivity and agricultural sustainability. However, the on-site impact of erosion remains a debatable issue because of the confounding impact of weather and the compensatory effects of high yields with technological improvements (e.g., new varieties, fertilizer use, soil water conservation) and on depositional sites. It was also during the 1980s and 1990s that soil scientists revisited the concept of soil capability and defined it in terms of soil quality. The importance of developing the concept of soil quality was enhanced because of the need to apply soil science to address the problems of nonagricultural uses of soil (e.g., mineland restoration, urban uses and disposal of urban wastes, soil contamination and pollution by industrial activities, athletic and recreational uses of soil, and environmental regulatory functions with particular reference to water quality and the greenhouse effect). A strong need, therefore, arose to develop appropriate indicators of soil quality in relation to specific soil function (e.g., agricultural, urban, industrial, recreational, athletic, environmental, and waste disposal).

The soil quality concept also has strong application in establishing the cause-effect relationship between soil erosion and productivity. Understanding the complex relationship can be simplified by evaluating and quantifying erosion-induced changes in soil quality (e.g., soil physical, chemical, and biological quality).

Two separate regional committees have been conducting research on these two important but interrelated themes. The NC-174 Committee has been working on “Soil Erosion and Productivity” issues since the mid-1980s and NC-59 on “Soil Quality” since the early 1990s. Because of their mutual interest in issues pertaining to sustainability and environmental quality, it was natural that these two committees work together. Therefore, a symposium was organized to review the progress made on soil quality and erosion-induced changes in soil quality and productivity. The

Organizing Committee of the symposium included members of both committees (R. Lal, D. Mokma, K. Olson, G. Steinhardt, J. Doran, D. Stott, and C. Rice). The symposium was organized in conjunction with the 51st Annual Meeting of the Soil and Water Conservation Society, held at Keystone, Colorado, in July 1996.

This volume is based on the invited and contributory papers presented at the Keystone symposium. The symposium was successful because of the excellent direction provided by Dr. G. Ham and Dr. B. Schmidt, advisors of NC-174 and NC-59 committees. It was their support and visionary direction that provided the incentive for both committees to work together. Most authors produced high-quality manuscripts that included state-of-the-art knowledge on the subject concerned and made the needed revisions to improve scientific quality. However, problems were encountered in submission and revision of some manuscripts, which delayed publication by about a year. Nonetheless, the support and cooperation received from members of the Organizing Committee and from all authors are gratefully acknowledged and much appreciated.

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