

# **Advances in Soil Science**

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# Advances in Soil Science

## Volume 16

Edited by B.A. Stewart

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# Preface

The International Society of Soil Science was organized in 1924 and the 1st International Congress of the Society was held in Washington, D.C., United States of America, in 1927. The 14th Congress was held August 12–18, 1990 in Kyoto, Japan. Dr. Akira Tanaka, Society President, stated “It is a serious concern of people in the world to sustain high farming productivity for feeding the ever growing population, and also to protect the environment for human habitation. For this purpose, it is necessary to maximize crop yield per unit field area through intensive management of the soil and crops on lands which are best suited for crop production, and to leave lands which are suboptimal for crops under natural conditions insofar as possible. Soil science is responsible for planning the optimum land-use system, for managing soils and crops with maximum efficiency, and for fighting intelligently against soil deterioration.” Dr. Tanaka clearly stated the challenges facing soil scientists, and they are indeed challenges. Even though the rate of world population growth has decreased somewhat in recent years, the consensus is that total population will double—to some ten billion—before it stabilizes. The increased production of food, fiber, and fuelwood necessary for the people will require a continued supply of new technologies and management practices.

The consensus of many scientists is that the greatest challenge is not increasing production, but preventing serious deterioration of the soil and water resource base so the production level can be sustained. There are many historical examples where civilizations were successful for extended periods only to see soil degradation lead to their collapse. There is sufficient knowledge today, and it is being added to daily, that the mistakes of the past need not occur in the future. However, success will require a blend of science and government policy to prevent short-term gains at the expense of long-term sustainability. This will be particularly difficult in areas where population pressures are so great that crop production is being extended to fragile lands.

*Advances in Soil Science* was established to provide a forum for leading

scientists to analyze and summarize the available scientific information on a subject, assessing its importance and identifying additional research needs. Most importantly, contributors are asked to develop principles that have practical applications to both developing and developed agriculture. It is not the purpose of the series to report new research findings because there are many excellent scientific journals for that need. Communications in scientific journals, however, are generally restricted to short and technical presentations. Therefore, *Advances in Soil Science* fills a gap between the scientific journals and the comprehensive reference books in which scientists can delve in depth on a particular subject relating to soil science. While intended primarily for scientists and students of soil science, the series provide technical information for anyone interested in our natural resources and man's influence on these resources. The reviews are written by leading scientists from many countries to provide the readers with information from a wide array of conditions.

The acceptance of *Advances in Soil Science* by both authors and readers has been very gratifying and confirms our perception that a need did exist for a medium to publish soil science reviews. I want to thank the authors for their excellent contributions, the Editorial Board for their help in selecting such competent contributors, and the Springer-Verlag staff for their kind assistance and counsel. Last, and most important, I want to thank the readers for their acceptance and use of *Advances in Soil Science*.

B.A. Stewart

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