Advances in Soil Science

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Advances in Soil Science

Volume 19 **Limitations to Plant Root Growth**

Edited by J.L. Hatfield and B.A. Stewart

With Contributions by
J.M. Baker, F.N. Dalton, C.D. Foy, B. Klepper,
J.J. Meisinger, J.F. Power, A.N. Sharpley,
D.L. Suarez, W.B. Voorhees, J.M. Wraith, R.W. Zobel

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J.L. Hatfield
National Soil Tilth Laboratory
USDA Agricultural Research Service
Ames, IA 50011 USA

B.A. Stewart
USDA Conservation and Production Research
Laboratory
Bushland, TX 79012 USA

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Preface

In the past 10 years, there has been a resurgence in interest in soil management and conservation of the soil resource. With the knowledge we have accumulated in the past 100 years, there is the possibility of developing new and innovative ways of effectively managing the soil. The emphasis on sustainable agriculture requires that we understand how to utilize the soil as a viable living resource. To meet the world demand for food within the next 50 years requires a healthy and strong soil resource which can sustain production.

With the dedication of the National Soil Tilth Laboratory in 1989, it was decided that one contribution the laboratory could make to agricultural science would be to foster an exchange of information on soil management. The focus of that interchange centers on long-term soil management. If we are to fulfill the goals of sustainable agriculture, environmental quality, and feeding the world, there will have to be an increased understanding of how to effectively manage the soil. Long-term soil management requires integrated and interdisciplinary research to bring all of the information together in terms which would be applicable to all soils. To accomplish this goal a workshop is held each year, with the exchange of information focusing on a single topic within the framework of developing effective strategies for long-term soil management.

With the forum to focus on an individual theme each year, the theme for the initial workshop was "Limitations to Plant Root Growth." This topic was chosen because it was felt that, before we could understand how to manage the soil, limitations to plant root growth should be overcome. The speakers for this workshop were invited to present their ideas about their perspectives on the individual topics which are represented within this volume. We included soil compaction as an additional topic, since there are large amounts of information in the literature that have not been included in this volume. There are many individuals who

were not able attend this workshop and they will benefit from having this information available. The chapters contain a wealth of information on different aspects of root growth. There are many topics which could have been included; however, the authors have presented an excellent set of papers and a thought-provoking set of needed research. We hope that all researchers will consider these topics worthy of research and will assist in finding the answers to these questions.

The chapters show that there is much we understand about the plant root system; however, there are many areas in which we need to gather more information. To fill these knowledge gaps, there needs to be a concerted effort to create teams which would combine several disciplines together. The goal of these workshops is to promote these interdisciplinary teams with the long-term goal of developing an understanding of how best to manage and improve the soil.

J.L. Hatfield
B.A. Stewart

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Contributors

- J.M. Baker*, U.S. Department of Agriculture, Agricultural Research Service, Soil and Water Management, St. Paul, MN 55108, USA
- F.N. Dalton*, U.S. Department of Agriculture, Agricultural Research Service, U.S. Salinity Laboratory, Riverside, CA 92501, USA
- Charles D. Foy*, U.S. Department of Agriculture, Agricultural Research Service, Climate Stress Laboratory, National Resources Institute, Beltsville, MD 20705, USA
- Betty Klepper*, U.S. Department of Agriculture, Agricultural Research Service, Columbia Plateau Conservation Research Center, P.O. Box 370, Pendleton, OR 97801, USA
- J.J. Meisinger*, U.S. Department of Agriculture, Agricultural Research Service, Beltsville, MD 20705, USA
- J.F. Power*, U.S. Department of Agriculture, Agricultural Research Service, Department of Agronomy, University of Nebraska, Lincoln, NB 68583, USA
- Andrew N. Sharpley*, U.S. Department of Agriculture, Agricultural Research Service, National Agricultural Water Quality Laboratory, Durant, OK 74702, USA
- D.L. Suarez*, U.S. Department of Agriculture, Agricultural Research Service, U.S. Salinity Laboratory, Riverside, CA 92521, USA
- Ward B. Voorhees*, U.S. Department of Agriculture, Agricultural Research Service, North Central Soil Conservation Research Laboratory, Morris, MN 56267, USA
- J.M. Wraith*, U.S. Department of Agriculture, Agricultural Research Service, Soil and Water Management, St. Paul, MN 55108, USA
- Richard W. Zobel*, U.S. Department of Agriculture, Agricultural Research Service, 1017 Bradfield Hall, Cornell University, Ithaca, NY 14853-1901, USA