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PREFACE

Since the 1994 site-specific management for agricultural systems conference, field applications of precision agriculture - precision farming, site-specific crop management, etc., - by producers and agribusiness have increased rapidly. At the same time, research conducted by a variety of scientists in the US and abroad grew significantly as attested by papers presented at this conference. Both, however, are indicating that optimum applications of the concept of what was initially call 'Farming by Soil Type', about twelve years ago, is much more complex that initially thought and requires much more research and development in management prescriptions, machinery, sensors, and software.

It has been said that new technologies go through three phases: excitement, chaos, and rebirth. Precision agriculture is still in a first development phase or infancy but will definitively change agricultural management by bringing technology and information age to the farm. It is the foundation for the next agricultural revolution.

This book contains the proceedings of the Third International Conference on Precision Agriculture held in Minneapolis (Bloomington) June 23-26, 1996. Previous conferences were held in Minneapolis, April 14-16, 1992 and March 27-30, 1994. The proceedings provide an overview of recent and current research and applications related to various aspects of precision agriculture, namely, soil resources, managing variability, technology, profitability, environment, and technology transfer. Keynote address papers, located at the beginning of each section, provide an introduction or a state of the art review of each aspect. These are followed by volunteer oral and poster papers. Papers presented during the pre-conference workshop on 'Precision Nitrogen Management-Latest Research Results' are located at the beginning of the book. Abstracts of oral and poster presentations without manuscripts are at the end of each section.

Fifteen workgroups met to list and rank research and development needs in precision agriculture. The summary of the workgroup recommendations are presented in Appendix I. The list of participants is in Appendix II and the list of exhibitors in Appendix III.

On behalf of all participants, we wish to express our gratitude to sponsoring organizations for their support and to ASA-CSSA-SSSA for publishing this document. We also wish to express our appreciation to all speakers and poster participants for their presentations and manuscripts, and to all participants who made the conference a success. We look forward for a fourth conference July 19-23, 1998 in Saint Paul, Minnesota.

P.C. Robert,
R.H. Rust,
W.E. Larson, co-editors

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