

## Advances in crop modelling for a sustainable agriculture

Edited by Emeritus Professor Kenneth Boote  
University of Florida, USA



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## New title information

# Advances in crop modelling for a sustainable agriculture

Edited by: Emeritus Professor Kenneth Boote, University of Florida, USA

### Endorsement:

“This book provides an excellent coverage of advances on key topics in crop modelling for a sustainable agriculture. The comprehensive interdisciplinary overview of current knowledge and challenges in crop modelling presented by the distinguished editor and the internationally well recognized contributing authors should become a key reference in this field of research.”

*Frank Ewert, Professor of Crop Science, University of Bonn and Scientific Director of the Leibniz Center of Agricultural Landscape Research (ZALF), Germany*

### Description:

This collection summarises key advances in crop modelling, with a focus on developing the next generation of crop and whole-farm models to improve decision making and support for farmers.

Chapters in Part 1 review advances in modelling individual components of agricultural systems, such as plant responses to environmental conditions, crop growth stage prediction, nutrient and water cycling as well as pest/disease dynamics. Building on topics previously discussed in Part 1, Part 2 addresses the challenges of combining modular sub-systems into whole farm system, landscape and regional models. Chapters cover topics such as integration of rotations and livestock, as well as landscape models such as agroecological zone (AEZ) models. Chapters also review the performance of specific models such as APSIM and DSSAT and the challenges of developing decision support systems (DSS) linked with such models. The final part of the book reviews wider issues in improving model reliability such as data sharing and the supply of real-time data, as well as crop model inter-comparison.

With its distinguished editor and range of experienced and expert chapter authors, this collection will be a standard reference for crop modellers and developers of decision support systems to improve the efficiency and sustainability of farming.

### Key features:

- Focus on development of next generation of whole farm models to improve decision making and support for farmers
- Addresses the challenges of combining modular sub-systems into whole farm system models
- Reviews the performance of specific models such as APSIM and DSSAT

### Audience:

Researchers in crop modelling in departments of crop science; companies developing decision support systems (DSS) in agriculture; government and other agencies providing agronomic advice for farmers

### Editor details:

Dr Kenneth Boote is Emeritus Professor in the Department of Agronomy at the University of Florida, USA. He is widely regarded as a pioneer in crop modelling, helping to develop the DSSAT software application program that simulates growth for over 40 different crops. He is presently serving as Co-Lead for Crop Modeling in AgMIP, the global Agricultural Model Intercomparison and Improvement Project. Amongst his many distinctions, Professor Boote is a Fellow of the American Association for the Advancement of Science, the Crop Science Society of America and the American Society of Agronomy.

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