1. Record Nr. UNINA9910784596703321

Titolo	Working with dynamic crop models [[electronic resource]] : evaluating, analyzing, parameterizing, and using them / / edited by Daniel Wallach, David Makowski, James W. Jones
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, 2006
ISBN	1-280-63858-3 9786610638581 0-08-046193-X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (465 p.)
Altri autori (Persone)	WallachDaniel <1942-> MakowskiDavid <1972-> JonesJames Wigington <1944->
Disciplina	631.5/58015118
Soggetti	Crop yields - Mathematical models Crops - Growth - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title; Copyright; Table of Contents; List of Contributors; Preface; Overview; Chapter 1: The two forms of crop models; Chapter 2: Evaluating crop models; Chapter 3: Uncertainty and sensitivity analysis for crop models; Chapter 4: Parameter estimation for crop models; Chapter 5: Data assimilation with crop models; Chapter 6: Representing and optimizing management; Chapter 7: Using crop models for multiple fields; Chapter 8: Introduction to Section II; Chapter 9: Fundamental concepts of crop models illustrated by a comparative approach; Chapter 10: Crop models with genotype parameters Chapter 11: Model-assisted genetic improvement of cropsChapter 12: Parameterization and evaluation of a corn crop model; Chapter 13: Evaluation of a model for kiwifruit; Chapter 14: Sensitivity and uncertainty analysis of a static denitrification model; Chapter 15: Sensitivity analysis of PASTIS, a model of nitrogen transport and transformation in the soil; Chapter 16: Sensitivity analysis of GENESYS, a model for studying the effect of cropping systems on gene flow; Chapter 17: Data assimilation and parameter estimation for precision

agriculture using the crop model STICS

Chapter 18: Application of Extended and Ensemble Kalman Filters to soil carbon estimationChapter 19: Analyzing and improving corn irrigation strategies with MODERATO, a combination of a corn crop model and a decision model; Chapter 20: Managing wheat for ethanol production: a multiple criteria approach; Appendix: Statistical notions; Answers to Exercises; Index

Sommario/riassunto

Mathematical models are being used more and more widely to study complex dynamic systems (global weather, ecological systems, hydrological systems, nuclear reactors etc. including the specific subject of this book, crop-soil systems). The models are important aids in understanding, predicting and managing these systems. Such models are complex and imperfect. One fundamental research direction is to seek a better understanding of how these systems function, and to propose mathematical expressions embodying that understanding. However, this is not sufficient. It is also essential to have