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| Edizione                | [1st ed.]  |
| Descrizione fisica      | 1 online resource (465 p.)   |
| Altri autori (Persone)  | WallachDaniel <1942-><br>MakowskiDavid <1972-><br>JonesJames Wigington <1944->   |
| Disciplina              | 631.5/58015118   |
| Soggetti                | Crop yields - Mathematical models<br>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;<br>Overview; Chapter 1: The two forms of crop models; Chapter 2:<br>Evaluating crop models; Chapter 3: Uncertainty and sensitivity analysis<br>for crop models; Chapter 4: Parameter estimation for crop models;<br>Chapter 5: Data assimilation with crop models; Chapter 6: Representing<br>and optimizing management; Chapter 7: Using crop models for<br>multiple fields; Chapter 8: Introduction to Section II; Chapter 9:<br>Fundamental concepts of crop models illustrated by a comparative<br>approach; Chapter 10: Crop models with genotype parameters<br>Chapter 11: Model-assisted genetic improvement of cropsChapter 12:<br>Parameterization and evaluation of a corn crop model; Chapter 13:<br>Evaluation of a model for kiwifruit; Chapter 14: Sensitivity and<br>uncertainty analysis of a static denitrification model; Chapter 15:<br>Sensitivity analysis of PASTIS, a model of nitrogen transport and<br>transformation in the soil; Chapter 16: Sensitivity analysis of GENESYS,<br>a model for studying the effect of cropping systems on gene flow;<br>Chapter 17: Data assimilation and parameter estimation for precision |

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|                    | agriculture using the crop model STICS<br>Chapter 18: Application of Extended and Ensemble Kalman Filters to<br>soil carbon estimationChapter 19: Analyzing and improving corn<br>irrigation strategies with MODERATO, a combination of a corn crop<br>model and a decision model; Chapter 20: Managing wheat for ethanol<br>production: a multiple criteria approach; Appendix: Statistical notions;<br>Answers to Exercises; Index   |
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| Sommario/riassunto | Mathematical models are being used more and more widely to study<br>complex dynamic systems (global weather, ecological systems,<br>hydrological systems, nuclear reactors etc. including the specific<br>subject of this book, crop-soil systems). The models are important aids<br>in understanding, predicting and managing these systems. Such<br>models are complex and imperfect. One fundamental research direction<br>is to seek a better understanding of how these systems function, and to<br>propose mathematical expressions embodying that understanding.<br>However, this is not sufficient. It is also essential to have |