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   Disciplina   632.5

   Soggetti   Agriculture
                                     Environmental monitoring
                                     Computer-aided engineering
                                     Bioinformatics
                                     Computer simulation
                                     Monitoring/Environmental Analysis
                                     Computer-Aided Engineering (CAD, CAE) and Design
                                     Computational Biology/Bioinformatics
                                     Simulation and Modeling
                                     Agricultura de conservació
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   Lingua di pubblicazione   Inglese

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   Livello bibliografico   Monografia

   Note generali   Includes index.

   Nota di contenuto   Section I - MODELLING IN WEED SCIENCE -- Chapter 1 - Mathematical
                                     models -- Chapter 2 - Decision Support Systems in Weed Science --
                                     Chapter 3 - Optimization in DSS -- Section II - BIO-ECOLOGICAL
                                     MODELS -- Chapter 4 - Population-based models -- Chapter 5 - Weed
                                     germination and dormancy models -- Chapter 6 - Field Emergence
                                     models -- Chapter 7 - Interference/Competition models -- Chapter 8 -
                                     Herbicide resistance modelling -- Section III - ENVIRONMENTAL RISK
                                     MODELLING -- Chapter 9 - Theory and practice for environmental risk
                                     assessment of weed management systems -- Chapter 10 -
                                     Environmental risk indicators for weed management assessment: a case

study of ecotoxicity risk using fuzzy logic -- Chapter 11 - DRASTIC GIS-based models: assessing the vulnerability of groundwater resources -- Section IV - WEED MANAGEMENT DECISION SUPPORT SYSTEMS: STUDY CASES -- Chapter 12 - FLORSYS model: How to use a virtual field to evaluate and design IWM strategies at different spatial and temporal scales -- Chapter 13 - Ryegrass Integrated Management (RIM)-based DSS -- Chapter 14 - CPOweeds: DSS for multispecies weed control in cereals crops -- Chapter 15 - AVENA-NET/LOLIUM-NET: DSS for Avena sterilis and Lolium rigidum control in cereal crops -- Chapter 16 - AVESUD: DSS for Avena fatua control in winter cereal crop rotations -- Chapter 17 - DSS Perspectives, Challenges and Future work.

| Sommario/riassunto | Weed management Decision Support Systems (DSS) are increasingly important computer-based tools for modern agriculture. Nowadays, extensive agriculture has become highly dependent on external inputs and both economic costs, as well the negative environmental impact of agricultural activities, demands knowledge-based technology for the optimization and protection of non-renewable resources. In this context, weed management strategies should aim to maximize economic profit by preserving and enhancing agricultural systems. Although previous contributions focusing on weed biology and weed management provide valuable insight on many aspects of weed species ecology and practical guides for weed control, no attempts have been made to highlight the forthcoming importance of DSS in weed management. This book is a first attempt to integrate 'concepts and practice' providing a novel guide to the state-of-art of DSS and the future prospects which hopefully would be of interest to higher-level students, academics and professionals in related areas. |