Record Nr. UNINA9910401936403321 Autore Xu Xiangzhou Titolo Experimental Erosion: Theory and Practice of Soil Conservation Experiments / / by Xiangzhou Xu, Tongxin Zhu, Hongwu Zhang, Lu Gao Singapore:,: Springer Singapore:,: Imprint: Springer,, 2020 Pubbl/distr/stampa 981-15-3801-8 **ISBN** [1st ed. 2020.] Edizione 1 online resource (247 pages) Descrizione fisica Disciplina 631.45072 Soggetti Soil science Soil conservation Hydrology Soil Science & Conservation Hydrology/Water Resources Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Foreword -- Preface -- Author resumes -- Contents -- Introduction --THEORIES AND METHODS FOR SOIL CONSERVATION EXPERIMENTS --Similarity of model experiments -- A conventional experimental technique: rainfall simulation -- An innovative measurement instrument: topography meter -- How to conduct an experiment in the field: a portable laboratory -- SOIL CONSERVATION EXPERIMENTS: CASE STUDIES ON THE LOESS PLATEAU, CHINA -- A close look of the gravity erosion on the Loess Plateau of China -- Effects of conservation practices on soil, water, and nutrients -- Sediment-storage effects of check-dam system in the small watershed -- Gravity erosions on the loess gully bank: avalanche, landslide, or mudslide -- A sensitivity analysis on the gravity erosion on the steep loess slope -- Detecting fingerprints of gravity erosion drivers: a laboratory experiment --Effects of gravity erosion on particle size distribution of suspended sediment -- Tunnel flow and erosion processes in an experimental

catchment -- Additional material.

This book is the first to systematically explore experimental erosion by integrating theory, erosion observations, and conservation applications. Although numerous books have been published on soil erosion both in

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English and in Chinese, none has concentrated on experimental studies on the Loess Plateau of China, in an attempt to establish a new subdiscipline: experimental erosion. One main objective of this book is to highlight monitoring and modeling methods for soil scientists who design and conduct experimental studies on soil loss. Another objective, and the most important one, is to make the results of these experiments more generally available. Accordingly, we have gathered and integrated a broad range of experimental results, both published and unpublished. In-depth discussions of the experimental data and new data processing methods are also included. The work covered here represents exemplary studies in the field of soil erosion and conservation, while the new methods and findings presented will provide practical guidance for controlling soil erosion. Hence the book offers a valuable resource for graduate students, soil erosion scientists and engineers, and soil and water conservationists.