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### 13.2 Soil Organic Carbon Turnover.

#### Sommario/riassunto

Feeding the increasing global population, which is projected to reach ~10 billion by 2050, there has been increasing demands for more improved/sustainable agricultural management practices that can be followed by farmers to improve productivity without jeopardizing the environment and ecosystem. Indeed, about 95% of our food directly or indirectly comes from soil. It is a precious resource, and sustainable soil management is a critical socio-economic and environmental issue. Maintaining the environmental sustainability while the world is facing resource degradation, increasing climate change and population explosion is the current challenge of every food production sectors. Thus, there is an urgent need to evolve a holistic approach such as conservation agriculture to sustain higher crop productivity in the country without deteriorating soil health. Conservation Agriculture (CA), is a sustainable approach to manage agro-ecosystems in order to improve productivity, increase farm profitability and food security and also enhance the resource base and environment. Worldwide, it has been reported various benefits and prospects in adopting CA technologies in different agro-climatic conditions. Yet, CA in arid and semi-arid regions of India and parts of south Asia raises uncertainties due to its extreme climates, large scale residue burning, soil erosion and other constraints such as low water holding capacity, high potential evapotranspiration, etc. Thus, the proposed book has 30 chapters addressing all issues relevant to conservation agriculture/no-till farming system. The book also gives further strengthening existing knowledge in relation to soil physical, chemical and biological processes and health within close proximity of CA as well as machinery requirements. Moreover, the information on carbon (C) sequestration, C credits, greenhouse gas (GHG) emission, mitigation of climate change effects and socio-economic view on CA under diverse ecologies namely rainfed, irrigated and hill eco-region is also deliberated. For large scale adoption of CA practices in South Asian region especially in India and other countries need dissemination of best-bet CA technologies for dominant soil types/cropping systems through participatory mode, strong linkages and institutional mechanism and public-private-policy support. We hope this book gives a comprehensive and clear picture about conservation agriculture/no-till farming and its associated problem, challenges, prospects and benefits. This book shall be highly useful reference material to researchers, scientists, students, farmers and land managers for efficient and sustainable management of natural resources.