1. Record Nr. UNINA9910350356403321

Titolo	Plant Growth Promoting Rhizobacteria for Agricultural Sustainability : From Theory to Practices / / edited by Ashok Kumar, Vijay Singh Meena
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2019
ISBN	981-13-7553-4
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XI, 314 p. 31 illus., 28 illus. in color.)
Disciplina	630
Soggetti	Agriculture Plant science Botany Genetic engineering Oxidative stress Microbiology Sustainable development Plant Sciences Genetic Engineering Oxidative Stress Sustainable Development
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Plant growth promoting bacteria: strategies to improve wheat growth and development under sustainable agriculture -- Rhizospheric microbiomes: biodiversity, mechanisms of plant growth promotion and biotechnological applications for sustainable agriculture -- Advances in the application of plant growth promoting rhizobacteria in horticulture -- Agriculture application of Pseudomonas - A view on the relative antagonistic potential against pests and diseases -- Plant growth-promoting rhizobacteria as biological tools for nutrient management and soil sustainability -- Rhizobacteria mediated root architectural improvement: A hidden potential for agricultural sustainability -- Role of Rhizobia for sustainable agriculture: Lab to Land -- Plant growth promoting rhizobacteria: harnessing its potential for sustainable plant

disease management -- Soil microbial hotspots and hot moments: management vis-a-vis soil biodiversity -- Surfactin: an emerging biocontrol tool for agriculture sustainability -- Molecular approaches to study plant growth-promoting rhizobacteria (PGPRs) -- Impact of land uses on microbial biomass C, N, P and microbial population in Indian Himalaya -- Potassium solubilizing bacteria (KSB): a microbial tool for K solubility, cycling and its availability to crop plants -- ACC deaminase producing bacteria: a key player in alleviating abiotic stresses in plants -- The sustainability of crop production by PGPR under abiotic stress conditions.

Sommario/riassunto

To meet the food security needs of the 21st century, this book focuses on ecofriendly and sustainable production technologies based on plant growth promoting rhizobacteria (PGPR). It is estimated that the global population could increase to 9 billion by 2050. Further, the amount of land devoted to farming has decreased. Soil is a living entity, and is not only a valuable natural resource for agricultural and food security, but also for the preservation of all life processes. Agricultural productivity rests on the foundation of microbial diversity in the soil, and in recent years, PGPR have emerged as an important and promising tool for sustainable agriculture. The injudicious use of agrochemicals by farmers has created a range of negative impacts, not only threatening the environment, but also destroying useful microorganisms in the soil. The efficient use of PGPR reduces the need for these chemicals while simultaneously lowering production costs. In turn, increased yields could provide a more favourable environment and encourage sustainability. This book assesses the impacts of PGPR on crops, environmental and socio-economic sustainability, and demonstrates these ecofriendly technologies' three critical advantages, namely (a) enhanced crop productivity, (b) reduced application of agrochemicals, and (c) increased incomes for farmers. Besides offering an economically attractive and ecologically sound means of augmenting the nutrient supply and combatting soil-borne pathogens, PGPR play an important part in boosting soil fertility, bioremediation and stress management for the development of ecofriendly and sustainable agriculture.