

Contents

Part I Soil Health Indicators for the Climate Change

- 1 Soil Health and Climate Change: An Overview** 3
Rattan Lal
- 2 Soil Health Indicators Under Climate Change: A Review
of Current Knowledge** 25
Diane E. Allen, Bhupinder Pal Singh, and Ram C. Dalal

Part II Soil Attributes and Soil Processes in Response to the Climate Change

- 3 Climate Change on Soil Structure and Soil Health:
Impacts and Adaptation** 49
Kwong Yin Chan
- 4 Soil pH, Soil Health and Climate Change** 69
Zdenko Rengel
- 5 Soil Organic Matter, Soil Health and Climate Change** 87
Ram C. Dalal, Diane E. Allen, K. Yin Chan, and Bhupinder Pal Singh
- 6 The Nitrogen Cycle: Implications for Management, Soil Health,
and Climate Change** 107
Bijay-Singh
- 7 Soil Respiration in Future Global Change Scenarios** 131
Bhupinder Pal Singh, Vivien de Rémy de Courcelles,
and Mark A. Adams

8 Soil Biota, Soil Health and Global Change	155
P.M. Mele	

Part III Conventional Land use Systems

9 Tillage and Crop Stubble Management and Soil Health in a Changing Climate	181
Brian W. Murphy, Ian J. Packer, Annette L. Cowie and Bhupinder Pal Singh	
10 Intensification in Pastoral Farming: Impacts on Soil Attributes and Gaseous Emissions	207
Surinder Sagggar, Jiafa Luo, Dong-Gill Kim, and Neha Jha	
11 Climate Change Impacts on Soil Processes in Rangelands	237
David J. Eldridge, Richard S.B. Greene, and Christopher Dean	
12 Possible Impacts of Climate Change on Forest Soil Health	257
R. John Raison and Partap K. Khanna	
13 Rehabilitated Mine-Site Management, Soil Health and Climate Change	287
Natasha C. Banning, Briony M. Lalor, Andrew H. Grigg, Ian R. Phillips, Ian J. Colquhoun, Davey L. Jones, and Daniel V. Murphy	

Part IV Organic Farming, Biochar and Bioenergy Systems

14 Organic Farming: Pros and Cons for Soil Health and Climate Change	317
Elizabeth Stockdale	
15 Biochar in Soil for Climate Change Mitigation and Adaptation	345
David Waters, Lukas Van Zwieten, Bhupinder Pal Singh, Adriana Downie, Annette L. Cowie, and Johannes Lehmann	
16 Bioenergy Systems, Soil Health and Climate Change	369
Brendan H. George and Annette L. Cowie	
Index	399



<http://www.springer.com/978-3-642-20255-1>

Soil Health and Climate Change

Singh, B.P.; Cowie, A.L.; Chan, K.Y. (Eds.)

2011, X, 406 p., Hardcover

ISBN: 978-3-642-20255-1