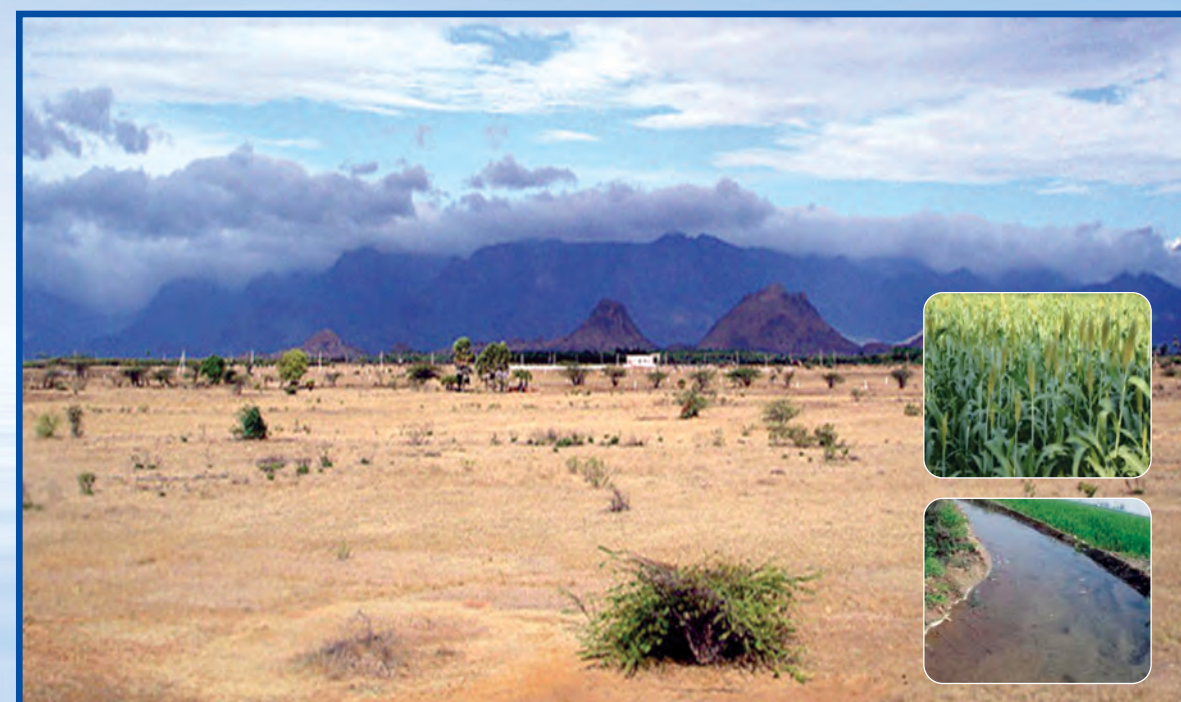




Natural Resource Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture

N.K. Pareek
Sanjay Arora

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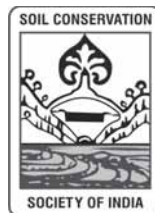
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Editors

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Foreword

Natural Resource management is a multi-disciplinary approach that integrates the complex interrelationship among soil, plant, animal, human and the environment. There is a strong need to increase agricultural production towards achieving the goals of livelihood security on sustainable basis as well as reduce the productivity gap between marginal and favoured areas. Arid and semi arid regions of the country are the underutilized areas with vast potential which can only be harnessed by sustainable management of natural resources. A resilient system has to be built which can deliver optimally under climate variability and change. Soil and Water Conservation and Irrigation are important aspects of land use and rural development in these regions. Participation of the stakeholders at various levels is absolutely necessary. Large-scale public investment is essential in the field of Conservation and resource utilization. The 25th National Conference at Bikaner on Natural Resource Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture and Rural Development, being organized jointly by the Soil Conservation Society of India, the Swami Keshwananad Rajasthan Agricultural University, Bikaner & Directorate of Watershed Development and Soil Conservation, Government of Rajasthan, Jaipur and sponsored by the Indian Council of Agricultural Research (ICAR) & DST-SERB, GoI, New Delhi, will address some of these issues and challenges of the century on Feb. 17-19, 2016 at Bikaner, Rajasthan.

On this occasion the book "Natural Resource Management in Arid and Semi-arid Ecosystems for Climate Resilient Agriculture" brought out by Soil Conservation Society of India will be useful for field level workers, policy makers, entrepreneurs, students, researchers and scientists for better management of the natural resources for sustainable farming in arid and semi-arid ecosystems. I congratulate the Society for bringing out the publication containing the contributions of the lead papers and presentations in the conference.

(Alok K. Sikka)

Preface

Natural resources are vital to the life system and are an important component of the societal development. However, growing biotic interference has resulted in considerable degradation of our valuable natural resources viz. land, water and vegetation creating ecological imbalances. Soil and water are perhaps the most important natural resources in the context of agriculture and their conservation is essential for sustaining productivity in the arid and semi-arid ecosystem. Inadequate implementation of soil and water conservation practices in these areas is a major constraint in agricultural production in the changing climate scenario. The shrinking forest and cultivated land resources have aggravated the problem of land degradation thereby posing a greater challenge for resource conservation. The sustainability approach through adoption of improved natural resource conservation practices is the need of the hour. Sustainable climate resilient agriculture, therefore, should involve the successful management of natural resources. Arid and semi arid regions of the country are the underutilized areas and the potential of these areas can only be harnessed by sustainable management of natural resources considering the socio-economic conditions of the farming community. There is need to develop comprehensive and effective adaptation and mitigation measures to enhance resilience to climate change. Appropriate land use decisions are vital to achieve optimum productivity of the land and to ensure environmental safety. The emphasis should not only be on just to halt further exploitation and degradation of natural resources but also to restore, reclaim and rehabilitate the degraded ecosystems.

Natural resource management in the drylands is going to play an important role in ensuring livelihood security, poverty alleviation and environmental protection. This book, 'Natural Resource Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture', is an attempt to address these needs. The publication is expected to benefit researchers, scientists, planners, policy makers and students and shall act as a good reference base for future advancements in technology development for natural resource management. This publication has emerged out of the lead papers, presentations and contributions by experts and experienced professionals for 25th National Conference of SCSI on "Natural Resources Management in Arid and Semi-Arid Ecosystem for Climate Resilient Agriculture and Rural Development".

The editors would like to thank the ICAR, SERB-DST, SKRAU for support and NABARD, for the financial assistance in bringing out this publication. We are highly indebted with the support and encouragement received from Prof. Suraj Bhan, President, SCSI and Dr. B.R. Chhipa, Hon'ble Vice Chancellor, SKRAU, Bikaner. We express our sincere thanks to all the contributors for their cooperation and participation in making this book highly informative.

Bikaner

**N.K. Pareek
Sanjay Arora**

Contents

A. Land, Water and Watershed Management

1. Land Resource Inventory and Agricultural Land Use Planning 1
R.S. Singh and R.K. Naitam
2. Greening the Degraded Lands: Achievements and Future Perspectives in Salinity Management in Agriculture 17
Dinesh Kumar Sharma and Anshuman Singh
3. Microbial Approach for Remediation and Health Management of Salt Affected Soils 31
Sanjay Arora
4. Effect of Landuse Systems on Soil Health in Arid Western Rajasthan 41
N.R. Panwar, J.C. Tewari, Mahesh Kumar, Khushbu Khichi, Prafful Joshi and Ram Partap
5. Managing Rainwater for Sustained Agricultural Production 45
S.S. Kukal
6. Sustainable Water Management Strategies 51
Atul Kumar Singh
7. Irrigation Water Management Research in Canal Command of North Western Rajasthan: An Overview 61
B.S. Yadav
8. Development of Software for Optimum Design of Drip Irrigation System 72
Narendra Agrawal and M.P. Tripathi
9. Application of GIS technologies in Integrated Watershed Management 86
C.P. Reddy and Sushila Yadav
10. Watershed Management using Remote Sensing and GIS 95
B.K. Gavit, R.C. Purohit, P.K. Singh, M.K. Kothari, H.K. Jain and Deepak Sharma
11. Remote Sensing and Geographic Information System (GIS), and Hydrological and Crop Modeling for Decision Support System in Natural Resource Management 102
Ranbir Singh Rana, Ramesh, Kunal Sood, Ranu Pathania and Vaibhav Kalia

12. Impact of Integrated Watershed Management on Sustainable Use of Natural Resources and Livelihoods in Bio-industrial Watershed: A Case Study <i>M.S. Hadda and Sanjay Arora</i>	113
13. An Experience of Integrated Water Management under Integrated Watershed Management Programme in Haryana –Ambala District <i>H.S. Lohan</i>	131
14. Improvement of Rural Livelihood through Watershed Management <i>Saradindu Das and Niladri Paul</i>	137
15. Modeling Daily Reference Evapotranspiration using Artificial Neural Network <i>Jitendra Sinha and Rekha Bai</i>	143
16. Sediment Yield Estimation Based on Curve Number using Modified Universal Soil Loss Equation <i>Manish Mishra, Akhilesh Kumar and P. V. Singh</i>	151
B. Conservation Agriculture And Climate Change	
17. Conservation Agriculture: Problems and Prospects in Indian Context <i>Suraj Bhan</i>	155
18. Conservation Agriculture in Arid and Semi-Arid Region with Special Reference to Climate Change: Prospects and Challenges <i>V.S. Rathore, S. Bhardwaj, N.D. Yadava, N.S. Nathawat and Birbal</i>	161
19. Sustainable Intensification of Cereal based Systems in Semi-Arid North West India – <i>Climate and Non-climate Drivers of Change</i> <i>H.S. Jat, M.L. Jat, P.C. Sharma, H.S. Sidhu and A.J. McDonald</i>	176
20. Conservation Agriculture for Improving Land and Water Productivity <i>Rajan Bhatt, Sanjay Arora and Raminder Kaur</i>	187
21. Natural Resource Management in the Present Scenario of Climate Change in Arid and Semi-Arid Regions <i>Rupesh Kumar Meena, Mohd. Arif, Gangadhar, Nanda and Vimal Khinchi</i>	202
22. Precision Agriculture – Technology to Increase the Resilience of Agriculture Production to Climate Change <i>A.K. Singh</i>	206
23. Agro-forestry a Future Strategy for Sustainable Agricultural Productivity in Climate Change Scenario of Arid Ecosystem <i>N.D. Yadava, M.L. Soni and V. Subbulakshmi</i>	213
24. Assessment of Carbon Sequestration Potential of Agroforestry Systems in Sikar and Hisar districts using CO2FIX model and Remote Sensing <i>R.H. Rizvi, Ram Newaj, P.S. Karmakar, Amit Jain and A. Saxena</i>	227

25. Carbon Finance Potential in Semi Arid Region of Rajasthan <i>Deepak K. Sarolia, Amol Vasishth and N.K. Pareek</i>	233
26. <i>Grewia tenax</i> (Forsk.) Fiori: A Multipurpose Underutilized Shrub for Arid Region <i>Keerthika A., Dipak Kumar Gupta, M.B. Noor Mohamed, B.L. Jangid and A.K. Shukla</i>	240
27. Spatial and Temporal Scales of SPI for Better Drought Monitoring <i>R. Balasubramanian and P. Guhathakurta</i>	248
C. Soil Health, Nutrient and Crop Management	
28. Principles and Strategies for Improving Soil Health under Organic Production Systems – An Overview <i>S.K. Sharma and D.K. Jajoria</i>	255
29. Soil Health for Sustainable Agricultural Production <i>I.J. Gulati</i>	264
30. Maintaining Soil Health in Soybean-based Cropping Systems for Sustainable Production <i>A.K. Vyas, Anchal Dass, Rishi Raj and N.K. Jain</i>	273
31. Declining Soil Health in the Erosion Prone Shivaliks of Jammu and Kashmir <i>Vikas Sharma, Vivak M. Arya and P.K. Rai</i>	285
32. Improved Soil Water Conservation and Soil Health by Organic versus Inorganic Nutrient Management under Two Crop Rotations <i>Pawan Sharma, Pratap Singh, Ram Prasad, S.L. Arya and H.C. Sharma</i>	292
33. Evaluation of Adverse Effect on Yield and Returns due to Waterlogging and Soil Salinity in Lakhuwali Pilot Area under Indira Gandhi Nahar Pariyojana Command <i>R.S. Shekhawat, P.S. Shekhawat and J.K. Gaur</i>	301
34. Integrated Farming System for Enhancing Farm Productivity and Livelihood Security <i>Ambreesh Singh Yadav and D.S. Srivastava</i>	307
35. Decision Support Tools for Regional Yield Estimation and Resource Management <i>K.K. Singh</i>	316
36. Crop Modelling in Natural Resources Management: A Decision Support Tool <i>S.K. Tripathi, Arvind Kumar and Sunil Kumar</i>	322
37. Integrated Nutrient Management for Enhancing Lentil Production <i>Jagannath Pathak and Pramod Kumar Mishra</i>	333

38. Approaches and Strategies for Improving Feed Resource Utilization in Crop-Livestock Small Farm Systems <i>Tribhuvan Sharma</i>	341
39. Forage Production Technologies for Sustainable Livestock and Livelihood under Climate Changed Scenario in Rajasthan <i>S. M. Kumawat, N.S. Yadava and S.S. Shekhawat</i>	350
40. Forage Crops and Forage-based Rotations for Enhancing Fodder Production and Water Use Efficiency in Arid Areas of Rajasthan <i>S.M. Kumawat, Rinku, R.C. Sanwal and Ashish Kumar</i>	355
41. Fodder Production from Watershed Areas for Rural Livelihood in Arid Region of Rajasthan <i>S.S. Shekhawat, S.M. Kumawat and S.L. Godara</i>	360
42. Effect of Potassium and Nitrogen Application on Nutrient Content, Total Uptake and Quality of Barley (<i>Hordeum vulgare</i> L.) in Loamy Sand Soil Conditions of Rajasthan <i>P.S. Shekhawat, R.P.S. Shaktawat and Dharmveer Singh Rathore</i>	365
43. Influence of Nitrogen Levels and Biofertilizers on Yield, Economics and Nutrient Uptake of Pearl millet (<i>Pennisetum glaucum</i> L.) under Rainfed Conditions <i>Rinku, P.S. Shekhawat and Narendra Kumawat</i>	370
44. Effect of Pearl millet + Legumes Intercropping System on Yield Indices and Economics <i>Arjun Lal Prajapat, Bhawana Saharan, Jitendra Kumar Verma, N.K. Pareek and K.K. Jain</i>	375
45. Zinc Deficiency Management through Agronomic Bio-fortification of Fodder Crops in Soil-Plant-Livestock Continuum <i>Rakesh Kumar</i>	380
46. Bio-prospecting for Natural and Novel Metabolites from Rare Thermophilic Actinomycetes from underexplored Arid Thar Desert Regions of Rajasthan, India <i>Jyotsna Begani and Dharmesh Harwani</i>	391
D. Impact Assessment, Farmers Participation and Rural Development	
47. Impact Assessment Typology <i>S.K. Sharma</i>	399
48. Suggestions by Young Farmers for Counteracting Constrains in Taking Up a Farm Enterprise <i>M.B. Tengli and O.P. Sharma</i>	406

49. Water Conservation Campaign through People's Participation in Konkan Region of Maharashtra <i>H.N. Bhange, D.M. Mahale and K.D. Gharde</i>	410
50. Role of Women in Work Sharing and in Decision Making: A Case Study of Crop Production and Dairy Farming in IGNP Command <i>R.S. Shekhawat and B.S. Meena</i>	416
51. Role of Civil Society Organisations in Natural Resource Management, Promotion of Sustainable Livelihood and Food Security in India <i>Deeya Singh Rathore and Subir Ghosh</i>	421
52. Adoption of Improved Chilli (<i>Capsicum annum</i> L.) Cultivation Technology among the Farmers of District Chittorgarh <i>R.S. Rathore, B.G. Chippa and B.S. Bhati</i>	441
53. Price Forecasting Technique for Efficient Market Intelligence to Combat Climate Uncertainties <i>Rajesh Sharma and Surjeet Dhaka</i>	444
54. Qualitative and Quantitative User Analysis of Mobile Agriculture & Rural Development (m-ARD) Apps <i>Amita Sharma</i>	452
55. Forecasting Wholesale Price of Chickpea using the Autoregressive Integrated Moving Average Model: the Case of Bikaner APMC <i>Saumitra Mathur and Surjeet Singh Dhaka</i>	460