

**PROFESSOR RATTAN LAL**  
**LIST OF PUBLICATIONS**  
**1967-2021**

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**Books Written****Books Edited**

1. Lal, R. (Ed). 2021. Soil Organic Matter and Feeding the Future: Environmental and Agronomic Impact. 1st ed. CRC Press LLC, Boca Raton, Florida. pp. 428

**Refereed Journal Articles**

2. Amonette, J.E., H. Blanco-Canqui, C. Hassebrook, D.A. Laird, R. Lal, J. Lehmann, and D. Page-Dumroese. 2021. Integrated Biochar Research: A Roadmap. *Journal of Soil and Water Conservation* 76, no. 1 (January 1): 24A LP-29A. <http://www.jswnonline.org/content/76/1/24A.abstract>.
3. Anghinoni, G., F.B.G. Anghinoni, C.A. Tormena, A.L. Braccini, I. de Carvalho Mendes, L. Zancanaro, and R. Lal. 2021. Conservation Agriculture Strengthen Sustainability of Brazilian Grain Production and Food Security. *Land Use Policy* 108: 105591. <https://www.sciencedirect.com/science/article/pii/S0264837721003148>.
4. Ansari MA, Saha S, Das A, Lal R, et al. 2021. Energy and carbon budgeting of traditional land use change with groundnut based cropping system for environmental quality, resilient soil health and farmers income in eastern Indian Himalayas. *J Environ Manage.* 2021 May 29;293:112892. doi: 10.1016/j.jenvman.2021.112892. Epub ahead of print. PMID: 34062423.
5. Das, A., K. Rangappa, S. Basavaraj, U. Dey, M. Haloi, J. Layek, R. G. Idapuganti, R. Lal, N. A. Deshmukh, G. S. Yadav, S. Babu, and S. Ngachan. 2021. Conservation tillage and nutrient management practices in summer rice (*Oryza sativa* L.) favoured root growth and phenotypic plasticity of succeeding winter pea (*Pisum sativum* L.) under eastern Himalayas, India. *Heliyon* 7(5):e07078.
6. Evans, D. L., Janes-Bassett, V., Borrelli, P., Chenu, C., Ferreira, C. S. S., Griffiths, R. I., Kalantari, Z., Keesstra, S., Lal, R., Panagos, P., Robinson, D. A., Seifollahi-Aghmiuni, S., Smith, P., Steenhuis, T. S., Thomas, A., & Visser, S. M. (2021). Sustainable futures over the next decade are rooted in soil science. *European Journal of Soil Science*, 1– 16. <https://doi.org/10.1111/ejss.13145>.
7. Gao, X., Y. Xu, Z. Li, S. Li, R. Tian, H. Li, R. Lal, L. Liu, M.F. Saeed, and J. Wang. 2021. Heteroaggregation of Humic Acid with Montmorillonite in Divalent Electrolytes: Effects of Humic Acid Content and Ionic Concentration. *Journal of Soils and Sediments* 21, no. 3: 1317–1328. <https://doi.org/10.1007/s11368-020-02858-y>.
8. Jayaraman, S., Naorem, A. K., Lal, R., Dalal, R. C., Sinha, N. K., Patra, A. K., et al. (2021). Disease-Suppressive Soils—Beyond Food Production: a Critical Review. *J. Soil Sci. Plant Nutr.* doi:10.1007/s42729-021-00451-x.
9. Kan, ZR., Han, SW., Liu, WX. et al. Higher sequestration of wheat versus maize crop carbon in soils under rotations. *Environ Chem Lett* (2021). <https://doi.org/10.1007/s10311-021-01317-5>.
10. Kimani-Murage, E., F. Gaupp, R. Lal, H. Hansson, T. Tang, A. Chaudhary, L. Nhamo, S. Mpandeli, T. Mabhaudhi, D. D. Headey, K. Hirvonen, and K. Afsana. 2021. An optimal diet for planet and people. *One Earth* 4(9):1189–1192
11. Lal R. Fate of Soil Carbon Transported by Erosional Processes. *Applied Sciences*. 2022; 12(1):48. <https://doi.org/10.3390/app12010048>
12. Lal, R. 2021. Feeding the world and returning half of the agricultural land back to nature. *Journal of Soil and Water Conservation* 76(4):75A LP-78A.
13. Lal, R. 2021. Negative Emission Farming. *Journal of Soil and Water Conservation* 76, no. 3 (May 1): 61A LP-64A. <http://www.jswnonline.org/content/76/3/61A.abstract>.
14. Lal, R. 2021. Soil Erosion and Gaseous Emissions. In Katra, Itzhak (Ed). *Soil Erosion: Dust Control and Sand Stabilization*. Applied Sciences and MDPI: Basel, Switzerland. <https://doi.org/10.3390/books978-3-03943-890-7>. ISBN 978-3-03943-889-1. (Reprint of 2020 #30)
15. Lal, R., J. Bouma, E. Brevik, L. Dawson, D.J. Field, B. Glaser, R. Hatano, et al. 2021. Soils and Sustainable Development Goals of the United Nations: An International Union of Soil Sciences Perspective. *Geoderma Regional* 25, no. June 2021: e00398. <https://www.sciencedirect.com/science/article/pii/S2352009421000432>.
16. Lal, R., C. Monger, L. Nave, and P. Smith. 2021. The role of soil in regulation of climate (vol 376, 20210084, 2021). *Philosophical Transactions of The Royal Society B-Biological Sciences*: 376(1838)

17. Layek, J., Das, A., Ramkrushna, G. I., Krishnappa, R., Ghosh, P. K., Lal, R., Choudhury, B. U., Mohapatra, K. P., Babu, S., Yadav, G. S., & Dey, U. (2021). Managing rice fallow lands of the Eastern Indian Himalayas: Impacts of residue management and varietal interventions on soil properties, carbon stocks, and productivity. *Land Degradation & Development*, 1– 18. <https://doi.org/10.1002/ldr.4067>.
18. Mishra, G., A. Sarkar, K. Giri, A.J. Nath, R. Lal, and R. Francaviglia. 2021. Changes in Soil Carbon Stocks under Plantation Systems and Natural Forests in Northeast India. *Ecological Modelling* 446: 109500. <https://www.sciencedirect.com/science/article/pii/S0304380021000715.g>
19. Moonilall, N. I., O. Homenauth, and R. Lal. 2021. Short-term effects of amendments on soil properties and agronomic productivity for a coastal Guyana soil. *Tropical Agriculture* 97(1):9–31
20. Nath, P. C., A. J. Nath, D. Reang, R. Lal, and A. K. Das. 2021. Tree diversity, soil organic carbon lability and ecosystem carbon storage under a fallow age chronosequence in North East India. *Environmental And Sustainability Indicators* 10 (2021).
21. Nawaz, A., M. Farooq, S. Ul-Allah, N. Gogoi, R. Lal, and K. H. M. Siddique. 2021. Sustainable Soil Management for Food Security in South Asia. *Journal of Soil Science and Plant Nutrition* 21(1):258–275.
22. Ngangom, B., A. Das, R. Lal, R. G. Idapuganti, J. Layek, S. Basavaraj, S. Babu, G. S. Yadav, and P. K. Ghosh. 2020. Double mulching improves soil properties and productivity of maize-based cropping system in eastern Indian Himalayas. *International Soil and Water Conservation Research* 8(3):308–320.
23. Qian, F., R. Lal, and Q. Wang. 2021. Land evaluation and site assessment for the basic farmland protection in Lingyuan County, Northeast China. *Journal Of Cleaner Production* 314 (2021).
24. Qian, F, Wang, W, Wang, Q, Lal, R. Implementing land evaluation and site assessment (LESA system) in farmland protection: A case-study in northeastern China. *Land Degrad Dev.* 2021.1– 16. <https://doi.org/10.1002/ldr.3922>
25. Romaniw J, de Moraes Sá JC, Lal R, de Oliveira Ferreira A, Inagaki TM, Briedis C, Gonçalves DRP, Canalli LB, Padilha A, Bressan PT. C-offset and crop energy efficiency increase due industrial poultry waste use in long-term no-till soil minimizing environmental pollution. *Environ Pollut.* 2021 Apr 15;275:116565. doi: 10.1016/j.envpol.2021.116565. Epub 2021 Feb 1. PMID: 33582636.
26. Smith, P., S. D. Keesstra, W. L. Silver, T. K. Adhya, G. B. De Deyn, L. G. Carvalheiro, D. L. Giltrap, P. Renforth, K. Cheng, B. Sarkar, P. M. Saco, K. Scow, J. Smith, J.-C. Morel, S. Thiele-Bruhn, R. Lal, and P. McElwee. 2021. Soil-derived Nature’s Contributions to People and their contribution to the UN Sustainable Development Goals. *Philosophical Transactions of The Royal Society B-Biological Sciences*: 376(1834).
27. Sun, T., C. Zhao, X. Feng, W. Yin, Z. Gou, R. Lal, A. Deng, Q. Chai, Z. Song, and W. Zhang. 2021. Maize-based intercropping systems achieve higher productivity and profitability with lesser environmental footprint in a water-scarce region of northwest China. *Food And Energy Security* 10(1).
28. Sun, T., X. Feng, R. Lal, T. Cao, J. Guo, et al. 2021. Crop diversification practice faces a tradeoff between increasing productivity and reducing carbon footprints. *Agric. Ecosyst. Environ.* 321: 107614. doi: <https://doi.org/10.1016/j.agee.2021.107614>.
29. Srinivasarao, C., S.P. Singh, S. Kundu, V. Abrol, R. Lal, P.C. Abhilash, G.R. Chary, P.B. Thakur, J.V.N.S. Prasad, and B. Venkateswarlu. 2021. Integrated Nutrient Management Improves Soil Organic Matter and Agronomic Sustainability of Semiarid Rainfed Inceptisols of the Indo-Gangetic Plains. *Journal of Plant Nutrition and Soil Science* n/a, no. n/a (August 1). <https://doi.org/10.1002/jpln.202000312>.
30. Yadav GS, Das A, Kandpal BK, Subhash, B., Lal, R. et al. (2021) The food-energy-water-carbon nexus in a maize-maize-mustard cropping sequence of the Indian Himalayas: An impact of tillage-cum-live mulching. *Renewable and Sustainable Energy Reviews* 151: 111602. DOI: <https://doi.org/10.1016/j.rser.2021.111602>.
31. Yadav, G.S., A. Das, S. Babu, K.P. Mohapatra, R. Lal, and D. Rajkhwa. 2021. Potential of Conservation Tillage and Altered Land Configuration to Improve Soil Properties, Carbon Sequestration and Productivity of Maize Based Cropping System in Eastern Himalayas, India. *International Soil and Water Conservation Research*. <http://www.sciencedirect.com/science/article/pii/S2095633921000010>  
***We fondly remember the life of our dear friend and scholar, the accomplished Dr. Gulab Singh Yadav.***
32. Zhao, X., He, C., Liu, W.-S., Liu, W.-X., Liu, Q.-Y., Bai, W., Li, L.-J., Lal, R., & Zhang, H.-L. (2021). Responses of soil pH to no-till and the factors affecting it: A global meta-analysis. *Global Change Biology*, 00, 1– 13. <https://doi.org/10.1111/gcb.15930>.
33. Zolin, C.A., E. da S. Matos, C.A. de S. Magalhães, J. Paulino, R. Lal, S.T. Spera, and M. Behling. 2021. Short-Term Effect of a Crop-Livestock-Forestry System on Soil, Water and Nutrient Loss in the Cerrado-Amazon Ecotone. *Acta Amazonica* 51, no. 2 (June 24): 102–112. [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0044-59672021000200102&tlng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0044-59672021000200102&tlng=en)

### *Chapters in Multi-Authored Books*

34. Das, A., J. Layek, G.S. Yadav, R. Lal, S. Saha, et al. 2021. Managing Soil Organic Carbon in Croplands of the Eastern Himalayas, India. In: Lal, R., editor, *Soil Organic Matter and Feeding the Future: Environmental and Agronomic Impact*. 1st ed. CRC Press LLC, Boca Raton, Florida. p. 26
35. Jayaraman, S., Naorem, A.K., Sinha, N.K., Mohanty, K.M., Patra, A.K., Chaudhari, S.K., Lal, R., and Dalal, R.C. 2021. Conservation Agriculture: Issues, Prospects, and Challenges in Rainfed Regions of India. Chapter 1. In: Jayaraman S., Dalal R.C., Patra A.K., Chaudhari S.K. (eds) *Conservation Agriculture: A Sustainable Approach for Soil Health and Food Security*. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0827-8\\_1](https://doi.org/10.1007/978-981-16-0827-8_1). pp. 1-21
36. Jayaraman S., Bandyopadhyay, K.K., Naorem, A.K., Sinha, N.K., Mohanty, M., Hati, K.M., Patra, A.K., Chaudhari, S.K., Dalal, R.C., Lal, R.. 2021. Soil Carbon Sequestration Through Conservation Tillage and Residue Management. Chapter 14. In: Jayaraman S., Dalal R.C., Patra A.K., Chaudhari S.K. (eds) *Conservation Agriculture: A Sustainable Approach for Soil Health and Food Security*. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0827-8\\_14](https://doi.org/10.1007/978-981-16-0827-8_14). pp. 299-319
37. Jayaraman, S., Naorem, A.K., Hati, K.M., Sinha, N.K., Patra, A.K., Chaudhari, S.K., Lal, R. and Dalal, R.C. 2021. Conclusions: Perspectives on Conservation Agriculture. In: Jayaraman S., Dalal R.C., Patra A.K., Chaudhari S.K. (eds) *Conservation Agriculture: A Sustainable Approach for Soil Health and Food Security*. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0827-8\\_30](https://doi.org/10.1007/978-981-16-0827-8_30). pp. 623-632
38. Lal, R. 2021. Soil Erosion and Its Impacts on Greenhouse Gases. Chapter 2. In: Li, R., Napier, T.L., El-Swaify, S.A., Sabir, M., and Rienzi, E., editors, *Global Degradation of Soil and Water Resources: Regional Assessment and Strategies*. Springer Press, Beijing, China. p. 11-20
39. Lal, R. 2021. Soil Strength and Carbon Sequestration. In: Hunt, A., Egli, M., and Faybishenko, B., editors, *Hydrogeology, Chemical Weathering, and Soil Formation*. Wiley, New York, NY, USA
40. Meena, R.S., S. Kumar, S. Sheoran, M.K. Jhariya, R. Bhatt, et al. 2021. Soil Organic Carbon Restoration in India: Programs, Policies, and Thrust Areas. In: Lal, R., editor, *Soil Organic Matter and Feeding the Future: Environmental and Agronomic Impacts*. 1st ed. CRC Press LLC, Boca Raton, Florida. p. 34
41. Mrabet, R., R. Moussadek, M. Devkota, and R. Lal. 2021. No-Tillage Farming in Maghreb Region: Enhancing agricultural productivity and sequestering carbon in soils. In: Lal, R., editor, *Soil Organic Matter and Feeding the Future: Environmental and Agronomic Impacts*. 1st ed. CRC Press LLC, Boca Raton, Florida. p. 26
42. Virk, A.L., G.S. Yadav, X. Zhao, Z.-R. Kan, J.-Y. Qi, et al. 2021. Role of Legumes in Managing Soil Organic Matter and Improving Crop Yield. In: Lal, R., editor, *Soil Organic Matter and Feeding the Future: Environmental and Agronomic Impacts*. 1st ed. CRC Press LLC, Boca Raton, Florida. p. 259–278

### *Invited Keynote and Panelist Presentations*

43. Lal, R. 2021. Managing Soil for Producing Nutritional Food and Mitigating Climate Change. Keynote Lecture and Panelist Discussion. 1 January 2021. National Institute of Food Technology Entrepreneurship and Management. Sonapat, Haryana, India. Online.
44. Lal, R. 2021. Carbon... the Heart of Soil Health. 2021 Soil Health Conference. 6-7 January 2021. South Dakota Soil Health Coalition. Pierre, South Dakota, USA. Online.
45. Lal, R. 2021. The Rights of a Living Soil. University Course Lecture at Earth University. 13 January 2021. Bija Vidyapeeth at Navdanya International. Florence, Italy. Online.
46. Lal, R. 2021. Reorienting Agricultural Research and Education. 15 January 2021. Punjab Agricultural University and Punjab State Farmers' & Farm Workers' Commission. Ludhiana, India. Panelist. Online.
47. Lal, R. 2021. Bringing Green Revolution to Small Landholder Farmers of Africa. Webinar for AZURA Group Director's Meeting. 27 January 2021. AZURA Group, France-Morocco. Online.
48. Lal, R. 2021. Leveraging Agricultural Best Tools for Climate Mitigation. 2021 Virtual Sustainable Agriculture Conference. 1 February 2021. Pasa Sustainable Agriculture. Online.
49. Lal, R. 2021. Soil Organic Carbon for Resilience and Sustainable Food Systems and Achieving Food and Nutrition Security. International Symposium on Spices and Aromatic Crops X. Spices as Flavors, Fragrances, & Functional Foods. 9 February 2021. SYMSAC X - 2021. Kerala, India. Online. Recorded.
50. Lal, R. 2021. Honorary Degree Acceptance Speech. Indian Agricultural Research Institution Convocation. 12 February 2021. Indian Agricultural Research Institution. Pusa, New Delhi, India. Online.
51. Lal, R. 2021. Soil Quality Management. Northeast Nebraska Bazile Groundwater Management Area Annual Public Winter Meeting. 19. February 2021. Lower Elkhorn Natural Resources District. Bazile, Nebraska, USA. Online.

52. Lal, R. 2021. An Amazing Agroforestry Story: The Inga Model In Central America (Virtual). Life Saves the Planet Lecture Series. 22 February 2021. Biodiversity for a Livable Climate and WGBH Forum Network. Boston, Massachusetts, USA. Panelist. Online. <https://forum-network.org/lectures/amazing-agroforestry-story-inga-model-central-america/>
53. Lal, R. 2021. Adopting a holistic approach to soil health and agricultural productivity in Africa. Argus Fertilizer Live – Virtual Conference. 24 February 2021. Argus Fertilizer. London, United Kingdom. Online. Panelist.
54. Lal, R. 2021. Food, Cities and Climate. Panel Discussion. 24 February 2021. New York City Food Policy Center at Hunter College. New York, New York, USA. Online. Panelist.
55. Lal, R. 2021. Potential & Challenges of Regenerative Agriculture. IICA-Pepsico Webinar. 4 March 2021. IICA and Pepsico. San José, Costa Rica. Online.
56. Lal, R. 2021. Managing Organic Matter: The Heart of Soil Health. Virtual World Agri-Tech Innovation Summit 2021: Harnessing Agriculture as a Source of Nature-Based Solutions for Climate. 9 March 2021. World Agri-Tech USA. Rethink Events. Brighton, United Kingdom. Online. Recorded.
57. Lal, R. 2021. Soil and Humanity. Day 2. TEDxOhioStateUniversity. 14 March 2021. The Ohio State University and TEDx. Columbus, Ohio, USA. Online. Starts at 28:00: <https://youtu.be/mKvs24s8jW8?t=1680>
58. Lal, R. 2021. Translating Science into Action by Building Bridges Across Societal Divides. International Summit on Agri-Innovations on 21st Century and the Ways Ahead. 9-10 March 2021. G.B. Pant University of Agriculture and Technology, Pantnager, Uttar Khant, India. Online. Recorded.
59. Lal, R. 2021. Soil Quality and Health. Global Agriculture Innovation Forum: Sustainable and Climate-Smart. 19 March 2021. USDA's Foreign Agricultural Service and Purdue University's Office of International Programs in Agriculture. West Lafayette, Indiana, USA. Online. <https://youtu.be/htENinZ7t6Y?t=1730>
60. Lal, R. 2021. Impact of Soil Carbon Dynamics on the Environment and Management of Improved Soil Health in the Coastal Ecosystems. International Symposium on Coastal Agriculture Webinar: Transforming Coastal Zone for Sustainable Food and Income Security. 17 March 2021. Indian Society of Coastal Agricultural Research. Canning Town, West Bengal, India. Online. Recorded.
61. Lal, R. 2021. Universities Fighting World Hunger (UFWH): One Planet - Hunger Solutions. 25 March 2021. University of California Davis. Davis, California, USA. Online.
62. Lal, R. 2021. Managing the Health of Soil in Semi-Arid Tropics for Food, Climate, and Other Ecosystem Services. ANGRAU Institutional Development Plan International Seminar Series. 26 March 2021. Acharya N. G. Ranga Agricultural University. Hyderabad, India. Online. Recorded.
63. Lal, R. 2021. Soil Health and Nutrition Sensitive Agriculture. Foundation Day Lecture. 1 April 2021. IARI, New Delhi, India. Recorded.
64. Lal, R. 2021. U.S. China Ag Roundtable. 8 April 2021. Chinese Academy of Social Sciences (CASS). Recorded.
65. Lal, R. 2021. Managing Soils for Food, Nutrition, and Climate. Soil4Food Webinar. 16 April 2021. CAU, Beijing, China. Online. Recorded.
66. Lal, R. 2021. Potential of Regenerative Agriculture for Carbon Management and Sustainability. 2021 ILSI Annual Science Symposium. 20 April 2021. ILSI. Online. Recorded.
67. Lal, R. 2021. C-MASC Earth Day Celebration. 22 April 2021. CFAES Rattan Lal Center for Carbon Management and Sequestration, College of Food, Agriculture, and Environmental Sciences, The Ohio State University, Columbus, Ohio, USA. Online Webinar. Recorded.
68. Lal, R. Restoring Earth's Carbon Cycle by Enhancing Soil Health. International Webinar on World Earth Day. 22 April 2021. SKNAU, Jobner, Jaipur, Rajasthan. Recorded.
69. Lal, R. 2021. Soil Health in the Age of Global Warming: Importance for the Sustainable Development of Society, Improving Post-Pandemic Human Health. 7 June 2021. Academy of Sciences Moldova. Recorded.
70. Lal, R. 2021. Climate Change Roundtable. 2 June 2021.
71. Lal, R. 2021. GCSE Presentation. 8 June 2021. Session 2.2 of the Transatlantic Symposium. Virtual Transatlantic Symposium: Academic Research Institutions Advancing Sustainability. Ambassade de France aux Etats-Unis and Global Council for Science and the Environment. Washington, D.C., USA.
72. Lal, R. 2021. Transformations of the World Food Systems. 28 June 2021. IICA Webinar. Inter-American Institute for Cooperation on Agriculture. San José, Costa Rica.
73. Lal, R. 2021. Future of Voluntary Carbon Markets for Sustainable Agriculture. 18 June 2021. Panelist.
74. Lal, R. 2021. Crop Residue Management and Properties of Some Soils in Ohio. 15 June 2021. Ohio NC-1178 Virtual Annual Meeting Committee. The Ohio State University, Columbus, Ohio, USA.
75. Lal, R. 2021. Sustainable Intensification to Advance Food Security in Africa. 23 July 2021. Tanzania.

76. Lal, R. 2021. Soil Centric Solutions The Triple Challenge of food insecurity, biodiversity loss and climate change. Pre-Summit of the UN Food Systems Summit: End Hunger and Nourish All. 26 July 2021. Rome, Italy.
77. Lal, R. 2021. Impact of Sustainability on Agriculture's Future. 28 July 2021. U.S. Grains Council Meeting - Wednesday General Session. Washington, D.C., USA. Online.
78. Lal, R. 2021. Bayer Presentation. 9 August 2021. Bayer OSU – FFAR Enhanced Carbon as a Climate Change Solution. The Ohio State University. Columbus, Ohio, USA.
79. Lal, R. 2021. Managing Soil Health and Restoring Soil Organic Matter for Addressing Global Issues of the 21st Century. 23rd August 2021. Golden Jubilee Celebration. Tamil Nadu Agricultural University (TNAU). Coimbatore, Tamil Nadu, India.
80. Lal, R. 2021. Soil Survey and Land Use Planning for Realizing the Sustainable Development Goals of the United Nations. 23 August 2021. 45th Foundation Day Event. ICAR National Bureau of Soil Survey and Land Use Planning (NBSS&LUP). Nagpur, Maharashtra, India.
81. Lal, R. 2021. Soil Centric Green Revolution for Positive Agriculture. 24 August 2021. USFRA Science and Sustainability Council Meeting U.S. Farmers and Ranchers Alliance. Chesterfield, Missouri, USA. Recorded.
82. Lal, R. 2021. Returning Some Land to Nature by Producing Enough from Less. 26 August 2021. President's Lecture. BSSS Annual Conference: From Principles to Practice. British Society of Soil Science. Bedford, U.K.
83. Lal, R. 2021. Agriculture and Climate Change in Ohio. 30 August 2021. Ohio Corn & Wheat Webinar. Ohio Corn & Wheat. Delaware, Ohio, USA.
84. Lal, R. 2021. Managing Soil as the Foundation for Sustainable Agriculture: What We Need from the UN Food Systems Summit and COP26. 7 September 2021. 1st JIF Lecture. Norwich Institute for Sustainable Development.
85. Lal, R. 2021. Soil Centric Approach to Increasing Food Production in India. Webinar Boosting Nature Positive Production. 13 September 2021. New Delhi, India.
86. Lal, R. 2021. Respectability of the Farming Profession. 16 September 2021. Honoring the Harvest Forum. U.S. Farmers & Ranchers Alliance. Chesterfield, Missouri, USA.
87. Lal, R. 2021. Holistic Focus on World Food Systems. 21 September 2021. SLYCAN Trust Independent Dialogue. Sri Lanka Youth Climate Action Network. Colombo, Sri Lanka.
88. Lal, R. 2021. Interview. 22 September 2021. Food is the Future – Game Changer Interviews. United Food Systems Summit. New York, New York, USA.
89. Lal, R. 2021. IICA Presentation. 22 September 2021. Living Soils of the Americas: a integrated approach to improve soil health and agrifood systems. United Nations Food Systems Summit Side Event. New York, New York, USA.
90. Lal, R. 2021. Soil Health for Food and Climate. 23 September 2021. Syngenta Soil Health Colloquia – Ag Research & Sustainability. Basel, Switzerland.
91. Lal, R. 2021. Managing Soil Health for Global Crops and Nutrition, Food, and Climate Security. 28 September 2021. ON24 Live Video & Audio Event | Managing Soil Health for Global Crop Nutrition, Food and Climate Security. The Mosaic Company. Tampa, Florida, USA.
92. Lal, R. 2021. Alternate Cropping and Food Systems to Conserve Resources and Address Global Issues. ICAR-IISSR Webinar. 29 September 2021. Meruth, Uttar Pradesh, India.
93. Lal, R. 2021. Soil and Agriculture as Source of Sink of Greenhouse Gases. 29 September 2021. International Symposium: Mitigating Agricultural Greenhouse Gases and Increasing Carbon Sequestration in a Circular Economy. Agriculture and Agri-Food Canada Agricultural Greenhouse Gases Program II. McGill University. Montreal, Quebec, Canada.
94. Lal, R. 2021. La Tribune Presentation. 30 September 2021. La Tribune: Transition Forum 2021. Paris, France.
95. Lal, R. 2021. Plenary Session 2: Converging Risks: Water Impacts, Desertification, Food Security. 1 October 2021. STS Forum and Regional Action on Climate Change (RACC13): Confronting Risk Convergence – Building resilience to regional interactions of climate, biodiversity and public health risks. Tokyo, Japan.
96. Lal, R. 2021. Sustainable Management of Soil Health in Dryland Agriculture for Improving Food Systems and Mitigating Climate Change. 4 October 2021. International Virtual Workshop on Soil Carbon for Sustainable Crop Production in Soil Health Management. Sri Karan Narendra Agriculture University (SKNAU). Jobner, Rajasthan, India.
97. Lal, R. 2021. Soil Health and the Agenda 2030 of the United Nations. 11 October 2021. 2nd General Assembly of International Science Council. Paris, France.
98. Lal, R. 2021. The Role of Private Sector in promoting nature positive agriculture. 12 October 2021. Finance at Countdown | Session 3: How to rapidly scale up flows of capital into the net zero transition.



99. Lal, R. 2021. Soil Health in the U.N. World Food Systems Summit. 13 October 2021. 1st International Workshop on Carbon Markets for Brazilian Tropical Agriculture – Day 1. EMBRAPA webinar. Brasília, Brazil.
100. Lal, R. 2021. Soils Health Management through Restoration of Soil Organic Matter Content. FAO Bangladesh 41st World Food Day. 18 October 2021. FAO Bangladesh. Dhaka, Bangladesh.
101. Lal, R. 2021. Educating Future Agricultural Scientists and Academicians in India. World Bank Employees of Indian Region in Washington. IIAG Advisory Group, Washington D.C., USA.
102. Lal, R. 2021. Laureate Lounge. 18 October 2020. Borlaug Dialog. World Food Prize Foundation (WFPF), Des Moines, Iowa, USA. Panelist.
103. Lal, R. 2021. Global Youth Institute: Roundtable Presentations. 18 October 2021. Borlaug Dialog Side Event. World Food Prize Foundation (WFPF), Des Moines, Iowa, USA. Panelist. Online.
104. Lal, R. 2021. U.K. Consulate General Side Event. 19 October 2021. Borlaug Dialog. World Food Prize Foundation (WFPF), Des Moines, Iowa, USA. Online.
105. Lal, R. 2021. Decarbonising the Agriculture Sector with Climate-Smart Innovation. 19 October 2021. British Consulate to the U.S. Borlaug Dialog Side Event. World Food Prize Foundation (WFPF), Des Moines, Iowa, USA. Online.
106. Lal, R. 2021. Indo-America Association of Iowa. 19 October 2021. Borlaug Dialog Side Event. World Food Prize Foundation (WFPF), Des Moines, Iowa, USA. Panelist. Online.
107. Lal, R. 2021. Land Grant Mission during the Anthropocene. 20 October 2021. Global Resource System Program Lecture,
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  136. Lal, R. 2021. Evaluation of seasonal effects of tillage and drainage management practices on soil physical properties and infiltration characteristics in a Silt-Loam soil. 15 December 2021. International Conference on Access to Recent Advances in Engineering and Digitalization. RDCONF: International Conference on Design, Research and Development. Nuh Naci Yazgan University, Kayseri, Turkey. Online.

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- i. Lal, R. 2021. Sparing Land for Nature I. 26 March 2021. Spring Issue 1: pp 3.
- ii. Lal, R. 2021. Sparing Land for Nature II. 19 October 2021. Fall Issue. Section 2.



- iii. Lal, R. 2021. Enhancing Awareness About the Importance of Soil to Addressing Global Issues. 30 December 2021. Winter Issue. pp. 7

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#### ***Invited Keynote and Panelist Presentations***

69. Lal, R. 2020. Advancing Sustainable Development Goals by Restoring Soil Health of India's Agroecosystems. Indian National Science Congress. 1-6 January 2020. Indian Science Academy (ISA), Bengaluru, India. Recorded.
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### ***Chapters in Multi-Authored Books***

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43. Jacinthe, P.A. and R. Lal. 2019. "Soil Erosion and Carbon Dioxide". In Encyclopedia of Environmental Management. Second Edition 2019. Taylor and Francis, Boca Raton, FL.
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46. Lal, R., 2019. Adaptation and Mitigation of Climate Change by Improving Agriculture in India, in: Sheraz Mahdi, S. (Ed.), Climate Change and Agriculture in India: Impact and Adaptation. Springer International Publishing, Cham, pp. 217–227. [https://doi.org/10.1007/978-3-319-90086-5\\_17](https://doi.org/10.1007/978-3-319-90086-5_17)
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48. Mtakwa P.K., N.N. Urio, F.M.W. Muniale, A.P. Mtakwa, R. Lal, B.R. Singh. 2019. Chapitre 10. "Conservation Agriculture in Tanzania." In Bamutaze, Y., Kyamanywa, S., Singh, B.R., Nabanoga, G. and Lal, R., (Ed) Agriculture and Ecosystem Resilience in Sub Saharan Africa: Livelihood Pathways Under Changing Climate. Springer Nature, Switzerland AG: 195 - 225.
49. Ussiri, D., R. Lal. 2019. Chapter 1. "Soil Degradation in Sub-Saharan Africa: Challenges and Opportunities for Restoration." In Bamutaze, Y., Kyamanywa, S., Singh, B.R., Nabanoga, G. and Lal, R., (Ed) Agriculture and Ecosystem Resilience in Sub Saharan Africa: Livelihood Pathways Under Changing Climate. Springer Nature, Switzerland AG: 1-23.

### ***Invited Keynote Presentations***

50. Lal, R. 2019. A System Approach to Soil Carbon Sequestration for Food, Climate and Environment. Soil System Science Symposium, 6-9<sup>th</sup> January 2019, San Diego, California, USA.
51. Lal, R. 2019. Biochar: Potential and Challenges. Presentation to The Andersons Inc., 11<sup>th</sup>, January 2019, Derby Hall, The Ohio State University, Columbus, Ohio, USA.
52. Lal, R. 2019. Adapting African Agriculture: the power of soil. Adapting African Agriculture Initiative, First Board Meeting, 16<sup>th</sup> January 2019, Rabat, Morocco.
53. Lal, R. 2019. Soil Surface Management for Carbon Sequestration. Combined Congress, 22-24<sup>th</sup> January 2019, South Africa.
54. Lal, R. 2019. Recarbonizing Soils of Global Drylands. 13<sup>th</sup> International Conference on Development of Drylands, 11-14<sup>th</sup> February 2019, Jodhpur, India.
55. Lal, R. 2019. Soil Carbon Sequestration and Food Security. Conference: "Change Climate. Agro-ecology and Renewable Gas: Let's pave the way together", BIOGAS, 28<sup>th</sup> February 2019, Milan, Italy.
56. Lal, R. 2019. Soil Carbon Sequestration in Arid and Semi-Arid Climates. Soil Water and Environmental Science Colloquium Series. 11<sup>th</sup> March 2019, University of Arizona, Tucson, Arizona, USA.
57. Lal, R. 2019. Carbon Management and Sequestration Center Program Plans and Prospects. Byrd Polar and Climate Research Center, 22<sup>nd</sup> March 2019, Columbus, Ohio, USA.
58. Lal, R. 2019. Importance of Soil Carbon Management to Agricultural Sustainability and Climate Change Mitigation. Sustainability Institute Faculty Research Networking Event. 28<sup>th</sup> March 2019, Columbus, Ohio, USA.
59. Lal, R. 2019. Sustainable Soil Management for Global Food and Climate Security. The Japan Prize Commemorative Lecture, 10<sup>th</sup> April 2019, University of Tokyo, Japan.
60. Lal, R. 2019. Stop Soil Erosion: Save our Future. Panel Discussion, Global Symposium on Soil Erosion, 15-17<sup>th</sup> May 2019, FAO, Rome, Italy.
61. Lal, R. 2019. Strengthening Cooperation Between IUSS & USUNSS. Presentation at the USNCSS, NAS, 29<sup>th</sup> May 2019, Washington, D.C., USA.
62. Lal, R. 2019. The Soil Will Save Our Soul. On Food and Faith: Ministry in the Time of Climate Change, 31<sup>st</sup> May 2019, Methodist Theological School of Ohio, Delaware, Ohio, USA.

63. Lal, R. 2019. Potential and challenges of soil organic carbon sequestration through “4 per Thousand” initiative. Presented at “Food Security and Climate Change: 4 p 1000 New Tangible Initiative for Soil”, 18-20 June 2019, Pottier, France.
64. Lal, R. 2019. Soil Health and Food Security in Stark County. Presentation to the Hoover Foundation, 24th June, 2019, Canton, Ohio.
65. Lal, R. 2019. Managing soil health by carbon sequestration. 2<sup>nd</sup> Edition, Planet A Forum, 27-28 June 2019, Châlons-en-Champagne, France.
66. Lal, R. 2019. Closing Remarks: Economic, Ethical and Theological Approaches to Soil Protection. 2<sup>nd</sup> Edition, Planet A Forum, 27-28 June 2019, Châlons-en-Champagne, France.
67. Lal, R. 2019. IUSS Activities in Soil-Climate Education. Presentation at IUBS Centennial Celebration, Norwegian Academy of Science and Letters, July 2019, Oslo, Norway.
68. Lal, R. 2019. Residue Management Plots in Ohio. Presentation at NC-1178 Committee Meeting, 25-26 July 2019, Fargo, South Dakota, USA.
69. Lal, R. 2019. The Rights of Soil. Presentation at NMBU, Norwegian University of Life Sciences, 1st August 2019, Ås, Norway.
70. Lal, R. 2019. Managing Soil Carbon for Food and Climate. Presentation at NMBU, 1st August 2019, Ås, Norway.
71. Lal, R. 2019. Summer Commencement Speech, 422nd Commencement The Ohio State University, 4th August 2019, Columbus, OH
72. Lal, R. 2019. Managing agricultural soils for global food and climate security international conference on equality. Natural Resources, Agriculture and Society in a Changing Climate, 17-19 August 2019, Kathmandu, Nepal.
73. Lal, R. 2019. Managing Soils to Address Global Issues of the 21st Century. Presentation at the Faculty of Agronomic and Food Sciences, Pontifical Catholic University of Valparaiso, 21st August 2019, Quillota, Chile
74. Lal, R. 2019. Eco-intensification of agro-ecosystems for food security and mitigation of climate change. Presented at the Special Symposium. How the soils can be utilized for Sustainable Development Goals, 2nd September 2019, Science Council of Japan. Tokyo Japan.
75. Lal, R. 2019. Managing Soils for negative feedback to climate change and positive impact on food and nutrition security,. Annual meeting of the Japanese Society of Soil Science and Plant Nutrition, 3-5 September 2019, Shizuoka, Japan.
76. Lal, R. 2019. Carbon Storage in Soil in Relation to Climate Change. The Norwegian Academy of Sciences and Letters, 23<sup>rd</sup> September 2019, Oslo, Norway.
77. Lal, R. 2019. A Soil-Centric Green Revolution for the 21st Century, 14-15 October 2019, Carthage, Tennessee, USA.
78. Lal, R. 2019. Climate Postive Panel. World Food Prize Conference. 14-16 October, 2019. Des Moines, Iowa, USA.
79. Lal, R. 2019. The Wholistic and Nexus Thinking to Address Complex Issues. Food, Energy, Water Systems Transdisciplinary Environmental Research Network, 26-28 October 2019, Seattle, Washington, USA.
80. Lal, R. 2019. Preparing Graduates to Be Leaders in Solving Global Environmental Challenges. Transforming Higher Education: GCHERA Conference. 28-29 October 2019, Nanjing, China.
81. Lal, R. 2019. Managing Soil and Natural Resources for Feeding and Greening Africa through the AAA Initiative. Published In (2020): Second Annual Ministerial Conference AAA: “Food security facing climate change.” "Proceedings of the Scientific Day, Adaptation of African Agriculture to Climate Change “From Science to Action.” 4-5 November 2019. University Mohammed VI Polytechnic Benguerir (Morocco), AAA Initiative Foundation, Rabat, pp.6-16.
82. Lal, R. 2019. Adaptation and Mitigation of Climate Change in India by Soil Conservation and Restoration. Soil and Water Resources Management for Climate Smart Agriculture and Global Food and Livelihood Security. 5-9 November 2019, New Delhi, India.
83. Lal, R. 2019. Climate Change Impacts on Soil Quality and Soil Degradation. SSSA Special Symposium on Soil Chemistry and Climate Change. Embracing the Digital Environment, ASA-SSA-CSA International Annual Meeting. 11-14 November 2019. San Antonio, Texas, USA.
84. Lal, R. 2019. Relevance of Science to Agriculture and Climate Change in the LAC Region. COP25. 3-5 December 2019. Madrid, Spain.
85. Lal, R. Managing Forests and Agriculture in Indonesia for Food and Climate. 11-12 December 2019. Jakarta, Indonesia.



86. Lorenz, K., R. Lal. 2019. Long-term effects of organic agriculture on soil organic carbon stocks up to one meter depth—a contribution to greenhouse gas mitigation? Byrd Center Symposium on Climate Change. 22<sup>nd</sup> March, 2019. Scott Hall. The Ohio State University. Columbus, Ohio, USA.
87. Lorenz, K., R. Lal. 2019. Achieving United Nations' Sustainable Development Goals by soil management. Soil Science Research Symposium. 28<sup>th</sup> March 2019. Kottman Hall. The Ohio State University. Columbus, Ohio, USA.
88. Maas, E., Mishra, U., Gautam, S., Wang, Y., Ghimire, R., Lal, R. 2019. A Model Ensemble Approach to Predicting Future Sorghum Cropping System Effects at the Field Level. 2019 ASA-CSSA-SSSA International Annual Meeting. 10-13<sup>th</sup> November 2019. San Antonio, Texas, USA.

#### ***Miscellaneous***

89. Lal, R. 2019. Reconciling India's food and nutritional security with environmental quality. Fortune India, January 13, 2019.
90. Lal, R. 2019. Soil-life nexus and soil carbon sequestration.
91. Lal, R. 2019. Drylands impact upon the carbon cycle.
92. Lal, R. 2019. U.S. Awasthi IFFCO Award Acceptance Speech. 2<sup>nd</sup> December 2019, New Delhi, India.

#### ***Newsletter Quarterly Viewpoints***

- vi. Lal, R. 2019. Global Carbon Sink Capacity. 30 September 2019, Quarterly Viewpoint, C-MASC Newsletter, Issue 3: pp 2.
- vii. Lal, R. 2019. Soil Organic Matter and Water Retention. 31 December 2019, QuarterlyViewpoint, C-MASC Newsletter, Issue 4: pp 2.

**Books Written**

1. Lorenz, K. and R. Lal. 2018. Carbon Sequestration in Agricultural Ecosystems. Springer, Nature, Switzerland, 393 pp.
2. Mehta, S., S. Kumar, A. Kumar, R. Lal. 2018. Lessons in Sustainable Development from Bangladesh and India. Palgrave Pivot, 108 pp.

**Books Edited**

3. Lal, R., B.A. Stewart (Eds). 2018. Soil Nitrogen and Environmental Impacts. Advances in Soil Science, Taylor and Francis, 379 pp.
4. Lal, R., B.A. Stewart (Eds). 2018. Soil and Climate. Advances in Soil Science, Taylor and Francis, 434 pp.
5. Lal, R., R. Horn, T. Kosaki (Eds). 2018. Soil and the Sustainable Development Goals. Catena-Schweizerbart, Stuttgart, 196 pp.
6. Meena, R.S., A. Das, G.S. Yadav and Rattan Lal (Eds) 2018. Legumes for Soil Health and Sustainable Management. Springer, Singapore, 539 pp.

**Refereed Journal Articles**

7. Álvarez, J.M., C. Pasian, R. Lal, R. Lopez-Nunez, M. Fernandez. 2018. A biotic strategy to sequester carbon in the ornamental containerized bedding plant production: A review. Spanish Journal of Agricultural Research 16(3): 03-01.
8. Álvarez, J.M., C. Pasian, R. Lal, R. López, M.J. Díaz, M. Fernández. 2018. Morpho-physiological plant quality when biochar and vermicompost are used as growing media replacement in urban horticulture. Urban Forestry & Urban Greening 34: 175-180.
9. Bordonal, R.O., J.L.N. Carvalho, R. Lal, E.B. Figuerido, B.G. Oliveria, N. Scala Jr. 2018. Sustainability of sugarcane production in Brazil. A review. Agronomy for Sustainable Development 38:18
10. Bordonal, R.O., L.M.S. Menandro, L.C. Barbosa, R. Lal, D.M.B.P. Milori, O.T. Kolln, J.L.N. Carvalho. 2018. Sugarcane yield and soil carbon response to straw removal in south-central Brazil. Geoderma, 328: 79-90.
11. Brahma, B., K. Pathak, R. Lal, B. Kurmi, M. Das, P.C. Nath, A.J. Nath, A.K. Das. 2018. Ecosystem carbon sequestration through restoration of degraded lands in Northeast India. Land Degradation & Development 29:15-25.
12. Briedis, C. J.C.M. Sá, R. Lal, F. Tivet, J.C. Franchini, A. de Oliveira Ferreira, D. Hartman, R. Schimiguel, P.T. Bressan, T.M. Inagaki, J. Romaniw, D. R Gonçalves. 2018. How does no-till deliver carbon stabilization and saturation in highly weathered soils? CATENA 163:13-23.
13. Buragohain, S., B. Sarma, D.J. Nath, N. Gogoi, R.S. Meena, R. Lal. 2018. Effect of 10 years of biofertilizer use on soil quality and rice yield on an Inceptisol in Assam, India. Soil Research 56(1): 49-58.
14. Cao, Q., H. Wang, Y. Li, Y. Zhang, G.S. Yadav, P. Zheng, R. Wang, R. Lal, X. Ge, J. Liu. 2018. The national distribution pattern and factors affecting heavy metals in sediments of water systems in China. Soil and Sediment Contamination 27:79-97.
15. Cerri, C.E.P., C.C. Cerri, S.M.F. Maia, M.R. Cherubin, B.J. Feigl, R. Lal. 2018. Reducing Amazon deforestation through agricultural intensification in the Cerrado for advancing food security and mitigating climate change. Sustainability 10(4): doi.org/10.3390/su10040989.
16. Daigh, A.L.M., W.A. Dick, M.J. Helmers, R. Lal, J.G. Lauer, E. Nafziger, C.H. Pederson, J. Strock, M. Villamil, A. Mukherjee, R. Cruse. 2018. Yields and yield stability of no-till and chisel-plow fields in the Midwestern US Corn Belt. Field Crops Research 218:243-253.
17. Das, A. D. Lyngdoh, P.K. Ghosh, R. Lal, J. Layek, R.G. Idapuganti. 2018. Tillage and cropping sequence effect on physico-chemical and biological properties of soil in Eastern Himalayas, India. Soil & Tillage Research 180:182-193.
18. Feng, X., Y. Hao, H. Latifmanesh, R. Lal, T. Cao, J. Guo, A. Deng, Z. Song, W. Zhang. 2018. Effects of Subsoiling Tillage on Soil Properties, Maize Root Distribution, and Grain Yield on Mollisols of Northeastern China. Agronomy Journal 110(4):1607-1615.
19. Ferreira, A.O., J.C.M. Sá, R. Lal, F. Tivet, C. Briedis, T.M. Inagaki, D.R.P. Goncalves, J. Roanie. 2018. Macroaggregation and soil organic carbon restoration in a highly weathered Brazilian Oxisol after two decades under no-till. Science of the Total Environment 621:1559-1567.

20. Fiksel, J., R. Lal. 2018. Transforming waste into resources for the Indian economy. *Environmental Development* 26:123-128.
21. Hassan, A., R. Lal, S.S. Ijaz, A. Mehmood. 2018. Ecosystem carbon sustainability under different C-equivalence inputs and outputs in dry land. *Journal of the Serbian Chemical Society* 83:367-377.
22. Hussain, M., S. Ahmad, S. Hussain, R. Lal, S. Ul-Allah. 2018. Rice in saline soils: physiology, biochemistry, genetics, and management. *Advances in Agronomy* 148:231-287.
23. Javed, A., M. Iqbal, M. Farooq, R. Lal and R. Shehzadi. 2019. Plastic film and straw mulch effects on maize yield and water use efficiency under different irrigation levels in Punjab, Pakistan. *International Journal of Agriculture and Biology*. In press (accepted). DOI: 10.17957/IJAB/15.0955.
24. Khanal, S., R. Lal, G. Kharel, J. Fulton. 2018. Identification and classification of critical soil and water conservation areas in the Muskingum River basin in Ohio. *Journal of Soil and Water Conservation* 73(2):213-226.
25. Lal, R. 2018. Accelerated soil erosion as a source of atmospheric CO<sub>2</sub>. *Soil & Tillage Research* 188: 35-40.
26. Lal, R. 2018. Digging Deeper: A Wholistic Perspective of Factors Affecting SOC Sequestration. *Global Change Biology* 24(8) doi: 10.1111/gcb.14054
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28. Lal, R. 2018. Promoting “4 per thousand” and “adapting African agriculture” by south-south cooperation: conservation agriculture and sustainable intensification. *Soil & Tillage Research*.  
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29. Lal, R. 2018. Saving global land resources by enhancing eco-efficiency of agroecosystems. *Journal of Soil and Water Conservation*, 73(4): 100A-106A.
30. Lal, R. 2018. Soil erosion and global warming. *Journal of Soil and Water Conservation* 6 (4):1-9.
31. Lal, R. 2018. Sustainable intensification of China's agroecosystems by conservation agriculture. *International Soil and Water Conservation Research* 6(1):1-12.
32. Lal, R. 2018. The ethics of soil conversation in India. *Journal of Soil and Water Conservation*, 17(1): 1-7.
33. Lal, R., P. Smith, H.F. Jungkunst, W. Mitsch et al. 2018. The carbon sequestration potential of terrestrial ecosystems. *J. Soil Water Conservation* 73: 145A-152A.
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### ***Chapters in Multi-Authored Books***

61. Das, A., J. Layek, G.S. Yadav, S. Babu, D. Sarkar, R.S. Meena and R. Lal. 2018. Chapter 10. "Managing nitrogen in small landholder hill farms of Northeastern Indian Himalayas." In Rattan Lal and B.A. Stewart (Eds) *Soil Nitrogen Uses and Environmental Impacts*. *Advances in Soil Science*, Taylor and Francis, Boca Raton, FL: 257-287.
62. Farooq, M., M. Sanaulla, F. Nadeem, N. Gogoi, M.S. Arshad, R. Lal. 2018. Chapter 13. "Soil degradation and climate change in South Asia." Rattan Lal and B.A. Stewart (Eds). *Climate and Soil*. *Advances in Soil Science*, Taylor and Francis, Boca Raton, FL: 323-357.
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78. Meena, R.S. and Rattan Lal. 2018. Chapter 1. "Legumes and sustainable use of soils." In Meena, R.S., A. Das, G.S. Yadav and R. Lal (Eds) *Legumes for Soil Health and Sustainable Management*, Springer, Singapore: 1-31 pp.
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82. Mitran, T., R. Lal, U. Mishra, R. S. Meena, T. Ravisankar, K. Sreenivas. 2018. Chapter 12. "Climate Change Impact on Soil Carbon Stock in India", Rattan Lal and B.A. Stewart (Eds). *Soil and Climate. Advances in Soil Science*, Taylor and Francis, Boca Raton, FL: 301-322.
83. Mitran, T., R.S. Meena, Rattan Lal, J. Layek, S. Kumar and R. Datta. 2018. Chapter 15. "Role of soil phosphorus on legume production." In Meena, R.S., A. Das, G.S. Yadav and R. Lal (Eds) *Legumes for Soil Health and Sustainable Management*, Springer, Singapore: 487-510.
84. Sejian, V., R. Bhatta, J. Gaughan, P.K. Malik, S.M.K. Naqui, and Rattan Lal 2018. Chapter 1. "Adapting sheep production to climate change." In V. Sejian, R. Bhatta, J. Goughan, P.K. Malik, S.M.K. Naqui and Rattan Lal (Eds) *Sheep Production Adapting to Climate Change*. Springer, Singapore: 1-30.
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86. Ussiri, D. and R. Lal. 2018. Chapter 7. "Nitrogen cycling and dynamics in terrestrial ecosystems." In Rattan Lal and B.A. Stewart (Eds) *Climate and Soil. Advances in Soil Science*: 183-217.

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### ***Invited Keynote Presentations***

89. Lal, R. 2018. Soil carbon and climate change. Moonlight on the Marsh Lecture, 1<sup>st</sup> March 2018, Naples, Florida.
90. Lal, R. 2018. Agriculture and the environment. IARI, 12<sup>th</sup> March 2018, New Delhi, India.
91. Lal, R. 2018. Managing agricultural soils of Pakistan for food and climate. International 17<sup>th</sup> Congress of Soil Science, Soil Science Society of Pakistan, 13-15<sup>th</sup> March 2018, Faisalabad, Pakistan
92. Lal, R. 2018. Soil degradation in India and the Positive Role of Plant Breeding. Rao Bahadur Dr. Ram Dhan Singh Memorial Lecture, HAU. 14<sup>th</sup> March 2018, Hisar, India
93. Lal, R. 2018. Soil organic carbon and climate change. Maharishi Dayanand University, 14<sup>th</sup> March 2018, Rohtak, India
94. Lal, R. 2018. Managing soil carbon for food and climate. University of Cost Rica, 5<sup>th</sup> April 2018, San José, Costa Rica.
95. Lal, R. 2018. Soil health and India’s agriculture. TAAS, 12<sup>th</sup> April 2018, New Delhi, India.
96. Lal, R. 2018. Managing soils in the world of 11 billion people. PhilRice, 19<sup>th</sup> April 2018, Muñoz, Philippines
97. Lal, R. 2018. Managing urban soils for food and environment. SUITMA 9, 22-26<sup>th</sup> May 2018, Moscow, Russia
98. Lal, R. 2018. Measurements and monitoring of soil organic carbon stocks. 28<sup>th</sup> May 2018, Beijing, China.
99. Lal, R. 2018. Historical evolution of agriculture and soil management in China. 30<sup>th</sup> May 2018, Hefei, Annuhi Province, China.
100. Lal, R. 2018. Soil-centric approach to advancing global food security. GIFS, 18<sup>th</sup> June 2018, Saskatoon, Canada.
101. Lal, R. 2018. Soil organic carbon for climate, food, and other ecosystem services. French Embassy, 19<sup>th</sup> June 2018, Washington, D.C.
102. Lal, R. 2018. Agroecological approach to soil health. Planet A Conference, June 27-28, Châlons-en-Champagne, France.
103. Lal, R. 2018. Soil as the keystone of mitigation and adaptation of climate change. UIMP, July 24-25, Santander, Spain.
104. Lal, R. 2018. Beyond food and fuel: The power of soil to address global issues, keynote presentation. 21 WCSS, 13<sup>th</sup> August, Rio de Janeiro, Brazil.
105. Lal, R. 2018. Bringing soil science to society. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
106. Lal, R. 2018. Brining soil science to society. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
107. Lal, R. 2018. Soil-human-health nexus. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
108. Lal, R. 2018. Evolution of conservation agriculture. 21<sup>st</sup> ISTRO Conference, 24-27 September, Paris, France.
109. Lal, R. 2018. Managing soil health for eco-intensification of agro-ecosystems, Patagonia headquarters, 5 September, Ventrue, California.
110. Lal, R. 2018. Power of soil and global issues. 54<sup>th</sup> annual Nobel Conference, Gustavus Adolphus College, 1-3 October, Saint Peter, Minnesota.
111. Lal, R. 2018. Managing soil health and functionality. Sixth Annual Great Lakes Regional Conference, 7 October, Toledo, Ohio.
112. Lal, R. 2018. Soil management for healthy food and environment. “Soil Food Week”, 9-14 October, Ecommunity Park. Oosterwolde, Holland.
113. Lal, R. 2018. Managing world soils for confronting the challenges of climate change. The Beckman Institute, 16 October, University of Illinois, Champaign-Urbana, Illinois, USA.
114. Lal, R. 2018. No-till farming for sustainable intensification of agro-ecosystems. Capacity Building for Managing Climate Change in Malawi Conference, 16-18 October, Lilongwe, Malawi.
115. Lal, R. 2018. Conservation agriculture. Ministry of agriculture and rural affairs (MARA), China 22<sup>nd</sup> October, Ohio State University, Columbus, Ohio.
116. Lal, R. 2018. Managing soils and advance world agriculture. 5<sup>th</sup> GUCHERA World Agriculture Prize, 28<sup>th</sup> October, Nanjing, China.
117. Lal, R. M. Erbaugh, D.O. Hansen. 2018. Creating World Class Teaching: Learning and Academic Ambience in Agricultural Universities in India. IAUA Golden Jubilee Conference, ICAR, 23-25 November, New Delhi, India.
118. Lal, R. 2018. Sustainable soil management as a solution to soil pollution. 5<sup>th</sup> December, World Soil Day, FAO, Rome. Italy.

### *Miscellaneous*

119. Srinivasarao, Ch., S. Kundu, A. Whitebread, R. Lal, T. Mahapatra. 2018. Drought mitigation through soil organic carbon improvement in tropical rainfed crop production systems of India. Abstract, 21<sup>st</sup> World Congress of Soil Sciences, 12-17 August 2018, Rio de Janeiro, Brazil.

### *IUSS Monthly Letters*

- i. Lal, R. 2018. Ex Nihilo Nihil Fit, 1<sup>st</sup> January 2018.
- ii. Lal, R. 2018. Soil: The Hidden Treasure of Nature. 1<sup>st</sup> February 2018.
- iii. Lal, R. 2018. We Are A Soil. 1<sup>st</sup> March 2018.
- iv. Lal, R. 2018. The Glamour of Soil Science. 1<sup>st</sup> April 2018.
- v. Lal, R. 2018. Soil Degradation: The Case of Human Parasitism. 1<sup>st</sup> May 2018.
- vi. Lal, R. 2018. Soil: The Urbanization Challenge. 1<sup>st</sup> June 2018.
- vii. Lal, R. 2018. Drylands. 1<sup>st</sup> July 2018.
- viii. Lal, R. 2018. Beyond Food and Fuel: The Power of Soil to Address Global Issues. 12<sup>th</sup> August 2018.
- ix. Lal, R. 2018. Did the stone age end because the world ran out of stone? 1<sup>st</sup> August 2018.
- x. Lal, R. 2018. Drought and ancient civilization. 1<sup>st</sup> September 2018.
- xi. Lal, R. 2018. Global food and nutritional security. 1<sup>st</sup> October 2018.
- xii. Lal, R. 2018. The soil centric agricultural reformation. 1<sup>st</sup> November 2018.
- xiii. Lal, R. 2018. Soil Pollution. 1<sup>st</sup> December 2018.
- xiv. Lal, R. 2018. Making Soils of Agro-ecosystems Emission Negative. 26<sup>th</sup> December 2018.



**Books Written**

1. Ussiri, D.A.N, R. Lal. 2017. Carbon Sequestration for Climate Change Mitigation and Adaptation. Springer, Cham, 549 pp.

**Books Edited**

2. Lal, R. & B.A. Stewart (Eds). 2017. Soil Phosphorus. Taylor & Francis, Boca Raton, FL, 331 pp.
3. Lal, R. & B.A. Stewart (Eds). 2017. Urban Soils. Taylor & Francis, Boca Raton, FL, 400 pp.
4. Sejian, V., R. Bhatta, J. Gaughan, P.K. Malik, S.M.K Naqvi, R. Lal (Eds). 2017. Sheep Production Adapting to Climate Change. Springer, Singapore, 441 pp.

**Refereed Journal Articles**

5. Anghinoni, G., C.A. Tormena, R. Lal, W.H. Moreria, E.B. Júnior, C.J.B. Ferreira. 2017. Within cropping season changes in soil physical properties under no-till in Southern Brazil. *Soil and Tillage Research* 166:108-112.
6. Araujo, M.A., Y.L. Zinn and R. Lal. 2017. Soil parent material, texture and oxide contents have little effect on soil organic carbon retention in tropical highlands. *Geoderma* 300: 1-10.
7. Brahma B, P. Pathak, R. Lal, B. Kurmi, M. Das, A.J. Nath, A.K. Das. 2017. Ecosystem carbon sequestration through restoration of degraded lands in Northeast India. *Land Degradation and Development* DOI 10.1002/ldr.2816 (IF: 9.8).
8. Bordonal, R.D., R. Lal, C.C. Ronquim, E.B. De Figueiredo, J.L.N. Carvalho, W. Maldonado, D. Milori and N. La Scala. 2017. Changes in quantity and quality of soil carbon due to the land-use conversion to sugarcane (*saccharum officinarum*) plantation in southern brazil. *Agriculture Ecosystems & Environment* 240: 54-65.
9. Buragohain, S., A. Sarma, D.J. Nath, N. Gogoi, R.S. Meena, R. Lal. 2018. Effect of 10 years of biofertiliser use on soil quality and rice yield on an Inceptisol in Assam, India. *Soil Research* 56:49-58.
10. Cao, Q., H. Wang, Y. Zhang, R. Lal, R. Wang, X. Ge, J. Liu. 2017. Factors affecting distribution patterns of organic carbon in sediments at regional and national scales in China. *Scientific Reports* 7:5497.
11. Daigh, A.L.M., W.A. Dick, M.J. Helmers, R. Lal, J.G. Lauer, E. Nafziger, C.H. Pederson, J. Strock, M. Villamil, A. Mukherjee, R. Cruse. 2017. Yields and yield stability of no-till and chisel-plow fields in the Midwestern US Corn Belt. *Field Crops Research* (In press)
12. Das, A., P.K. Ghosh, R. Lal, R. Saha and S. Ngachan. 2017. Soil quality effect of conservation practices in maize-rapeseed cropping system in eastern Himalaya. *Land Degradation & Development* 28(6): 1862-74.
13. Das, A.J., S. Lal, R. Kumar and C. Verma. 2017. Bacterial biosurfactants can be an ecofriendly and advanced technology for remediation of heavy metals and co-contaminated soil. *International Journal of Environmental Science and Technology* 14(6): 1343-54.
14. Feng, Q., J. Xu, Y. Zhang, X. Li, J. Xu, H. Han, T. Ning, R. Lal, Z. Li. 2017. CO<sub>2</sub> fixation in above-ground biomass of summer maize under different tillage and straw management treatments. *Scientific Reports* 7:16888.
15. Guzman, J.G., D. Ussiri, R. Lal. 2017. Greenhouse gas emissions following conversion of a reclaimed minesoil to bioenergy crop production. *Land Degradation and Development* 28(8):2563-2573.
16. Hussain, M., S. Ahmad, S. Hussain, R. Lal, S. Ul-Allan, A. Nawaz. 2017. Rice in saline soils: physiology, biochemistry, genetics, and management. *Advances in Agronomy* doi.org/10.1016/bs.agron.2017.11.002
17. Hussain, S., M. Maqsood, R. Lal, M. Hussain, M.A. Sarwar, M. Bashair, A. Ullah and I. Ul Haq. 2017. Integrated nutrient management strategies to alleviate drought stress in hybrid maize in punjab, pakistan. *Romanian Agricultural Research* 34: 233-42.
18. Jha, P., S. Verma, R. Lal, C. Eidson and G.S. Dheri. 2017. Natural C-13 abundance and soil carbon dynamics under long-term residue retention in a no-till maize system. *Soil Use and Management* 33(1): 90-97.
19. Kemper, K., R. Lal. 2017. Pay dirt! Human health depends on soil health. *Complementary Therapies in Medicine* 32:A1-A2.
20. Lal, R. 2017. Improving soil health and human protein nutrition by pulses-based cropping systems. *Advances in Agronomy* 145:167-204
21. Lal, R. 2017. Restoring soil and water resources and mitigating climate change in India by judicious management of agricultural and urban wastes. *Journal of the Indian Society of Soil Science* 65(2):105-117.
22. Lal, R. 2017. Soil erosion and global warming. *Indian Journal of Soil and Water Conservation* 16(4):297-305.
23. Lal, R. 2017. Sustainable intensification of China's agroecosystems by conservation agriculture. *International Journal of Soil and Water Conservation* DOI:10.1016/j.iswcr.2017.11.001

24. Lal, R., R.H. Mohtar, A.T. Assi, R. Ray, H. Baybil, M. Jahn. 2017. Soil as a basic nexus tool: soils at the center of the food-energy-water nexus. *Current Sustainable/Renewable Energy Reports* 4:117-129.
25. Lal, R. 2017. Managing soils of Colombia and South America for addressing global issues and advancing sustainable development goals. *Suelos Ecuatoriales, Journal of Colombia Society of Soil Science*, 60<sup>th</sup> Anniversary Issue:
26. Layek, J., A. Das, R.G. Idapuganti, D. Sarkar, A. Ghosh, S.T. Zodape, R. Lal, G.S. Yadav, A.S. Panwar, S. Ngachan, R.S. Meena. 2017. Seaweed extract as bio-stimulant improves productivity and quality of rice in eastern Himalayas. *Journal Applied Phycology*, DOI 10.1007/s10811-017-1225-0
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### ***Invited Keynote Presentations***

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82. Lal, R. 2017. Soil as a nexus tool. FEW Nexus Workshop, 25-27 January 2017 at Texas A&M University, College Station, Texas.
83. Lal, R. 2017. Soil health and carbon sequestration. Dannon Workshop on Soil Health, 2 February 2017, White Plains, New York.
84. Lal, R. 2017. Soils, climate change and security: the role of South-South Cooperation, Crans Montana Forum on Africa and South-South Cooperation, 16-21 March 2017, Dahkla, Morocco
85. Lal, R. 2017. Soil organic carbon sequestration: importance and state of science. Global Symposium on Soil Organic Carbon, 20-23 March 2017, Rome, Italy.
86. Lal, R. 2017. Climate change and agriculture production: adapting crops to increased climate variability and uncertainty. Bihar Agricultural University, 6-8 April 2017, Sabour, Bhagalpur, India.
87. Lal, R. 2017. The Food-Energy-Water-Waste nexus in India. Waste Management Innovation Conference, 17-18 April, Mumbai, India.
88. Lal, R. 2017. Linking science and research results with large-scale impact in dry areas for sustainable development under climate change. International Center for Agricultural Research in the Dry Areas (ICARDA) National Agricultural Research Systems Consultation Meeting, 1-3 May, Rabat, Morocco
89. Lal, R. 2017. Science and practice of soil carbon sequestration. Sequestering Carbon in Soils: Addressing the Climate Threat, 3-5 May, Paris, France
90. Lal, R. 2017. Sustainability & Soil-Water-Waste nexus. Global Soils Week, 22-24 May 2017 Berlin, Germany.
91. Lal, R. 2017. Searching for the nexus. Dresden Nexus Conference, 17-19 May, Dresden, Germany.
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93. Lal, R. 2017. Managing urban soils for food security and climate change. SUITMA 9, 22-27 May 2017, Moscow, Russia
94. Lal, R. 2017. Soil conservation for mitigating climate change. University of Lleida, 12-14 June 2017, Lleida, Spain.
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97. Lal, R. 2017. The importance of soil in managing the anthropocene. Global Soil Partnership/Technical Panel on Soils (ITPS), 20-22 June, Rome, Italy.
98. Lal, R. 2017. Soil carbon and climate change. 254th ACS National Meeting and Exposition, 20-24 August, Washington DC
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101. Lal, R. 2017. Managing soils for enhancing eco-efficiency of fertilizers. 11<sup>th</sup> October, Saskatoon, Canada
102. Lal, R. 2017. Soil and the anthropocene. Chinese Soc. Soil & Fertilizer Sciences, National Taiwan University, Dept. Agric. Chem., 22-26 October, Taipei, Taiwan.
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104. Lal, R. 2017. Importance of organic matter in soils of dryland ecosystems. Combating Desertification and Dryland Management-Theory and Practice, Ben Gurion University of the Negev, 6-9 November, Beersheba, Israel.
105. Lal, R. 2017. Carbon sequestration by combating desertification in Drylands. Combating Desertification and Dryland Management-Theory and Practice, Ben Gurion University of the Negev, 6-9 November, Beersheba, Israel.
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### ***Miscellaneous***

112. Abendroth, Lori J., Daryl E. Herzmann, Giorgi Chighladze, Eileen J. Klavivko, Matthew J. Helmers, Laura Bowling, Michael Castellano, Richard M. Cruse, Warren A. Dick, Norman R. Fausey, Jane Frankenberger, Aaron J. Gassmann, Alexandra Kravchenko, Rattan Lal, Joseph G. Lauer, Daren S. Mueller, Emerson D. Nafziger, Nsalambi Nkongolo, Matthew O'Neal, John E. Sawyer, Peter Scharf, Jeffrey S. Strock, and Maria B. Villamil. 2017. Sustainable Corn CAP Research Data (USDA-NIFA Award No. 2011-68002-30190). National Agricultural Library - ARS - USDA.
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### **IUSS Monthly Viewpoint**

- i. Lal, R. 2017. Best Wishes for 2017 and Beyond, 1<sup>st</sup> January 2017.
- ii. Lal, R. 2017. Soils and Global Issues. 1<sup>st</sup> February 2017.
- iii. Lal, R. 2017. Inter-disciplinary cooperation. 1<sup>st</sup> March 2017.
- iv. Lal, R. 2017. Building Soil Bridges Across Nations: Soil Science Without Borders. 1<sup>st</sup> April 2017.
- v. Lal, R. 2017. Sustainable Intensification: Producing More from Less. 1<sup>st</sup> May 2017.
- vi. Lal, R. 2017. Soil: The Global Icon. 1<sup>st</sup> June 2017.
- vii. Lal, R. 2017. Soil and Peace. 1<sup>st</sup> July 2017.

- viii. Lal, R. 2017. The Anthropocentrism and Soil Health. 1<sup>st</sup> August 2017.
- ix. Lal, R. 2017. The Ecological Costs of Soil Management Practices. 1<sup>st</sup> September 2017.
- x. Lal, R. 2017. In Soil We Trust. 1<sup>st</sup> October 2017.
- xi. Lal, R. 2017. The Solutions Under Foot. 1<sup>st</sup> November 2017.
- xii. Lal, R. 2017. Medical Pedology: An emerging Discipline in Soil Science. 1<sup>st</sup> December 2017.

**Books Edited**

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3. Aishwath, O.P., R. Lal. 2016. Resilience of Spices, Medicinal and Aromatic Plants With Climate Change Induced Abiotic Stresses. *Annals of Plant and Soil Research* 18(2):91-109.
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101. Lal, R. 2016. Tenets of Soil Quality Management. Pakistan
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104. Lal, R. 2016. Environment and Agriculture. Federal University of Mato Grosso (UFMT), Cuiaba, Brazil 9-13 May 2016
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***e) Invited Keynote Presentations***

91. Lal, R. 2015. Soil and Society. Alberta Soil Science Workshop, Edmonton, Canada, February 17-19, 2015.
92. Lal, R. 2015. Soil and Global Peace. 39th annual conference of the Soil Science Society of Nigeria, Owerri, Nigeria, 9-13 March 2015.

93. Lal, R. 2015. Soil Carbon Sequestration and Climate Change. VIII Costa Rican Soil Science Congress, San José, Cost Rica, 18-20 March 2015.
94. Lal, R. 2015. Beyond DNC-2015. Dresden Nexus Conference, Dresden, Germany, 25-27 March 2015.
95. Lal, R. 2015. Soil Security and Carbon Sequestration. Malaysian Society of Soil Science, Soil Security for Increasing Crop Production, Kuala Lumpur, Malaysia, 7-8 April 2015
96. Lal, R. 2015. Challenges of Measuring and Managing Soil C Sink for Mitigating Climate Change. Global Soil Week 2015, Berlin, Germany, 20-23 April 2015 .
97. Lal, R. 2015. Soil as a Sink of Atmospheric CO<sub>2</sub> and CH<sub>4</sub>. Global Soil Week 2015, Berlin, 20-23 April 2015
98. Lal, R. 2015. Global Issues and IUSS. U.S. National Committee for Soil Science, Washington D.C., 7-8 May, 2015.
99. Lal, R. 2015. Environmental Sustainability. International Conference on Climate Change and Multi-dimensional Sustainability in African Agriculture, Morogoro, Tanzania, 3-5 June, 2015
100. Lal, R. 2015. Synthesis. International Conference on Climate Change and Multi-dimensional Sustainability in African Agriculture, Morogoro, Tanzania, 3-5 June, 2015
101. Lal, R. 2015. Managing Landscape for Environmental Sustainability. International Conference on Climate Change and Multi-dimensional Sustainability in African Agriculture, Morogoro, Tanzania, 3-5 June, 2015
102. Lal, R. 2015. Global Issues and IUSS. International Conference on Climate Change and Multi-dimensional Sustainability in African Agriculture, Morogoro, Tanzania, 3-5 June, 2015
103. Lal, R. 2015. Achieving Emission Neutrality in Australia by Managing Terrestrial Carbon Pool and Using Nuclear Energy. National Workshop on Nuclear Energy for Australia, Cooperative Research Center for Contamination Assessment and Remediation of the Environment (CRC-CARE) National Workshop on Nuclear Energy for Australia, Adelaide, Australia, 16 June, 2015.
104. Lal, R. 2015. Carbon Sequestration in Soils: A Challenge for Food Security and Climate Action. INRA, Paris, France, 7<sup>th</sup> July 2015
105. Lal, R. 2015. Soil Quality. Annual CS-CAP Meeting, Lied Lodge, Nebraska 3-5 August 2015.
106. Lal, R. 2015. Soil Carbon Pool as an Environmental Indicator. International Conference on Environmental Indicators (ICEI), Windsor, Canada, 2-5 August 2015.
107. Lal, R. 2015. Integrated Resource Management for Efficient Food Production. International Soil Conference on "Sustainable Uses of Soil in Harmony with Food Security (ISC2015), Phetchaburi Province, Thailand, 18-21 August 2015.
108. Lal, R. 2015. Soil Science and Societal Challenges in the FACCE Remit. Thematic Annual Programming on Improving Soil Quality Workshop. FACCE-JPI Wageningen, Netherlands 24<sup>th</sup> August 2015.
109. Lal, R. 2015. Saving Oil by Managing Soil. Soil Not Oil International Conference, Richmond, California, 4-5 September 2015.
110. Lal, R. 2015. Soil and Sustainability. Annual Meeting of the Japanese Society of Soil Science, Kyoto, Japan, 9-11 September 2015
111. Lal, R. 2015. Future Priorities in Soil Science. Annual Meeting of the Japanese Society of Soil Science, Kyoto, Japan, 9-11 September 2015
112. Lal, R. 2015. Soil Restoration for Ecosystem Services. IUSS Sustain 2015 Conference, University of Kiel, Germany, 21-24 September 2015.
113. Lal, R. 2015. The Societal Value of Soil Organic Matter and Ecosystem Services. 5<sup>th</sup> International Symposium on Soil Organic Matter, Göttingen, Germany 20-24 September 2015.
114. Lal, R. 2015. Land Use Effects on Coupled Cycling of Carbon and Water in a Changing Climate. Honorary Doctorate Award Ceremony, Technical University, Dresden Germany 23<sup>rd</sup> September 2015.
115. Lal, R. 2015. Evolution of Conservation Agriculture. Institute of Soil and Water Conservation, CAS&MWR, Yangling, Xian, China, 14 October 2015.
116. Lal, R. 2015. Soil science in the 21<sup>st</sup> century. International Youth Forum on Soil and Water Conservation, Nanchang, Jianxi, China 16-18 October 2015.
117. Lal, R. 2015. Solutions Underfoot: The Power of Soils. Austrian Academy of Science, Vienna, 2 November 2015.
118. Lal, R. 2015. Carbon Storage and Dynamics in Urban Soils. SSSA Annual Meeting, Minneapolis, MN, 16 November 2015
119. Lal, R. 2015. International Context of SOC Sequestration. FACCE-JPI Meeting. Dublin, Ireland, 16-17 November 2015.
120. Lal, R. 2015. Inter-Connectivity and Sustainability TAMUS-Resource Nexus: Water Forum. San Antonio, Texas, 17-18 November 2015.
121. Lal, R. 2015. Land Degradation. IFPRI Policy Seminar, Washington, DC, 3 December 2015
122. Lal, R. 2015. Sustainable Management of Agricultural Soils. KFRI, Peechi, Thrissur, India, 10-11 December 2015

123. Lal, R. 2015. Soil carbon sequestration and management to mitigate climate change. 1<sup>st</sup> International Conference “Afro-Mediterranean Soils: Constraints and Potentialities for Durable Management”. Marrakech, Morocco, 18-19 December 2015.

***f) Voluntary Contributions***

124. Alvarez, J.M., C. Pasian, R. Lal, R. Lopez, M. Fernandez. 2015. Biochar and vermicompost as peat replacement for ornamental-plant production. Poster
125. Stout, B., R. Lal, C. Monger. 2015. Carbon capture and sequestration (CCS): The role of agriculture in soils. ASABE 1st Climate Change Symposium: Adaptation and Mitigation. Chicago, IL, 3-5 May 2015.

***g) Miscellaneous***

**a) Books Edited****b) Refereed Journal Articles**

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14. de Paul Obade, V., & Lal R. 2014. Using meta-analyses to assess pedo-variability under different land uses and soil management in central Ohio, USA. *Geoderma* 232–234: 56-68.
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#### ***d) Invited Keynote Presentations***

73. Lal, R. 2014. Achieving Global Peace and Environment Quality Through Sustainable Intensification. Rotary International, Ski, Norway, 16 September 2014
74. Lal, R. 2014. Carbon Resiliency Role. CS-CAP National Conference, Ames IA. 4-7, August 2014.
75. Lal, R. 2014. Climate Resilience in Agriculture. VII International Environmental Congress, CEID, CORP, Columbus, 20 October, 2014
76. Lal, R. 2014. Improving soil quality and adapting to climate change by sustainable soil management. Monty's 2014 Farm Forum, Louisville, KY, 11 February 2014.
77. Lal, R. 2014. Innovative technologies for soil carbon sequestration to advance food security and mitigate climate change. 12<sup>th</sup> Meeting of the FACCE-JPI, SAB, Kingsway Hall Hotel, 9-10 September 2014, London, UK.
78. Lal, R. 2014. Pedospheric Processes and Climate Change. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
79. Lal, R. 2014. Principles to Practices of Sustainable Soil Management. Global Principles of Sustainable Soil Management, U.N. Headquarters, New York, 28 January 2014.
80. Lal, R. 2014. Soil and Global Peace. Norwegian University of Life Sciences, As, Norway, 18 September 2014
81. Lal, R. 2014. Soil Carbon Sequestration and Climate Change Mitigation. Istanbul Carbon Summit, 3-5 April 2014, Istanbul, Turkey.
82. Lal, R. 2014. Soils and Ecosystem Services. Conference: Role of Agriculture in Providing Ecosystem and Societal Services, Moldova, 24-25 November 2014
83. Lal, R. 2014. Sustainable Intensification. CS-CAP Annual Meeting, Ames, Iowa, 5-7 August 2014.
84. Lal, R. Climate Strategic Agriculture. Indian Institute of Soil Science, Bopal, India. 10-13 March 2014.
85. Lal, R. Soil Resilience and Climate Change. SSSA Ecosystem Services Conference, Sacramento, CA. 6-7 March 2014
86. Lal, R. The Role of Soil Scientists in Addressing Global Issues of Anthropocene and Climate Strategic Agroecosystems. 20th World Congress Soil Science, 8-13 June 2014. Jeju, Korea.
87. Lal, R. The Soil-Peace Nexus: Our Common Future. 20th World Congress Soil Science, 8-13 June 2014. Jeju, Korea.
88. Lal, R. 2014. Tenets of Soil Quality Management in South Asia. International Conference on Forests, Soil and Rural Livelihoods in a Changing Climate. Kathmandu, Nepal, 27-30 Sept. 2014
89. Stout, W., Kuby, M., Lal, R. Carbon Capture and Sequestration – Role of Agriculture and Soils. 18<sup>th</sup> CIGR World Congress, Beijing, China. 16-19 September 2014.

#### ***e) Voluntary Contributions***

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91. Briedis, C., Sa, J.C.M., Lal, R., Schimiguel, R., Bressan, P.T., Hartman, D.C., Ferreira, A. 2014. Biomass-C Transport into Soil Carbon Pools in Brazilian Oxisols: A Long Term Incubation Study. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
92. Gautam, S., Kumar, S., Mbonimpa, E.C., Bonta, J., Lal, R., Kjaersgaard, J.H., Papiernik, S.K., Williams, J.R. 2014. Simulating Runoff from Small Grazed Pasture Watersheds Located at North Appalachian Experimental Watershed. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
93. Gelaw, A.M., Singh, B.R., Lal, R. 2014. Soil Organic Carbon and Total Nitrogen Stocks Under Different Land Uses in Tigray, Northern Ethiopia. 20th World Congress Soil Science, 8-13 June 2014. Jeju, Korea.

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95. Guzman, J.G., Lal, R., Ussiri, D. 2014. Carbon Dynamics Under Bioenergy Crop Production from Minesoils in Eastern Ohio. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
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97. İbrahim Ortaş, Çağdaş Akpınar, Gülistan Özer, Rattan Lal, Selim Kapur. 2014. Carbon Sequestration and Mycorrhizae in Turkish Soils. Istanbul Carbon Summit: Carbon Management, Technologies & Trade, Istanbul, Turkey 3-5 April 2014.
98. Kadono, A., Kumar, S., Nakajima, T., Lal, R. 2014. Modeling of Carbon Dioxide Emission from Cornfield Soils under Different Water Table and Tillage Management in Central Ohio, USA. 20th World Congress Soil Science, 8-13 June 2014. Jeju, Korea.
99. Lorenz, K., Lal, R. 2014. Carbon Sequestration in Urban Soils for Enhancing the Resilience of Urban Ecosystems to Climate Change. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
100. Nakajima, T., Lal, R. 2014. Assessment of Soil Quality Index of Crosby Silt Loam in Central Ohio. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
101. Obade, V., Lal, R. 2014. A Standardized Soil Quality Index for diverse Field Conditions. 2014 Annual Meeting. ASA, CSSA, SSSA, Long Beach, California. 2-6 November 2014.
102. Pandi Zdruli, Rattan Lal, Micheal Cherlet, Selim Kapur. 2014. The New World Atlas of Desertification and Issues of Carbon Sequestration, Organic Carbon Stocks, Nutrient Depletion and Implications to Food Security. Istanbul Carbon Summit: Carbon Management, Technologies & Trade, Istanbul, Turkey, 3-5 April 2014.
103. Srinivasarao, Ch., Lal, R., Venkateswarlu, Bolan, N. 2014. Improving Soil Productivity in Dryland Agroecosystems of India by Using Organic Amendments. 20th World Congress Soil Science, 8-13 June 2014. Jeju, Korea.
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#### ***f) Voluntary Contributions***

#### ***g) Miscellaneous***

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**a) Books Written**

1. Ussiri, D. and R. Lal. 2013. Soil Emissions of N<sub>2</sub>O and Its Mitigation. Springer Verlaag, Holland, 395 pp.

**b) Books Edited**

2. Lal, R., Lorenz K., Hüttl, R.R.J., Schneider, B.U. and von Braun, J. (Eds). 2013. Ecosystem Services and Carbon Sequestration in the Biosphere. Springer, Dordrecht, Netherlands: 464 pp.
3. Lal, R. and Stewart, B.A. (Eds). 2013. Principles of Sustainable Soil Management in Agroecosystems. Advances in Soil Sci. Taylor and Francis, Boca Raton, FL. 568 pp.
4. Sivakumar, M.V.K., Rattan Lal, Ramasamy Selvaraju and Ibrahim Hamdan (Eds). 2013. Climate change and food security in West Asia and North Africa. Springer, Dordrecht, Netherlands: 422 pp.

**c) Refereed Journal Articles**

5. Adhikari, S., Lal, R., Sahu, B.C. 2013. Carbon footprint of aquaculture in eastern India. J. Water & Climate Change 4(4): 410–421. DOI: 10.2166/wcc.2013.028.
6. Bonin, C., Flores, J., Lal, R., Tracy B. 2013. Root characteristics of perennial warm-season grasslands managed for grazing and biomass production. Agronomy 3, 508-523.
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9. de Paul Obade Vincent, & Lal, R. 2013. Assessing land cover and soil quality by remote sensing and geographical information systems (GIS). Catena, 104, 77-92.
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11. Demessie, A., B.R. Singh, and R. Lal. 2013. Soil carbon and nitrogen stocks under chronosequence of farm and traditional agroforestry land uses in Gambo District, Southern Ethiopia. Nutr. Cycl. Agroeco. 95: 3, 365-375.
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17. Kumar, S., Kadono, Atsunobu; Lal, Rattan; Dick, Warren. 2013. Response to “Comments on ‘Long-term no-till impacts on organic carbon and properties of two contrasting soils and corn yields in Ohio’”. Soil Sci. Soc. Am. J. 77:2, 694-695.
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25. Lenka, N. and R. Lal. 2013. Soil aggregation and greenhouse gas flux after 15 years of wheat straw and fertilizer managment in a no-till system. Soil & Tillage Res 126:78-89.

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27. Liang, Long; Lal, Rattan; Du, Zhangliu; Wenliang Wua, Fanqiao Menga. 2013. Estimation of nitrous oxide and methane emission from livestock of urban agriculture in Beijing. *Agriculture Ecosystems & Environment*. 170, 28-35
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45. Srinivasarao, Ch; Lal, R., Kundu, S., Prasad Babu, M.B.B., Venkateswarlu, B., Singh, A.K. 2013. Soil carbon sequestration in rainfed production systems in the semiarid tropics of India. *Science of the Total Environment*, DOI: <http://dx.doi.org/10.1016/j.scitotenv.2013.10.006>
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47. Stavi, I. and R. Lal. 2013. Agroforestry and biochar to offset climate change: a review. *Agron. Sust. Dev.* 33:81-96 (DOI:10.1007/s13593-012-0081-1).

48. Stavi, Ilan, Lal, Rattan. 2013. Agriculture and greenhouse gases, a common tragedy. A review. *Agron. Sust. Dev.* 33: 2, 275-289.
49. Stockmann, U., Mark A. Adams, John W. Crawford, Damien J. Field, Nilusha Henakaarchchi, Meaghan Jenkins, Budiman Minasny, Alex B. McBratney, Vivien de Remy de Courcelles, Kanika Singh, Ichsani Wheeler, Lynette Abbott, Denis A. Angers, Jeffrey Baldock, Michael Bird, Philip C. Brookes, Claire Chenu, Julie D. Jastrow, Rattan Lal, Johannes Lehmann, Anthony G. O'Donnell, William J. Parton, David Whitehead, Michael Zimmermann. 2013. The knowns, known unknowns and unknowns of sequestration of soil organic carbon. *Agriculture, Ecosystems and Environment* 164(1): 80–99.
50. Tivet, F.; de Moraes Sa, Joao Carlos; Lal, Rattan; Borszowski, Paulo Rogerio; Briedis, Clever. 2013. Soil organic carbon fraction losses upon continuous plow-based tillage and its restoration by diverse biomass-C inputs under no-till in sub-tropical and tropical regions of Brazil. *Geoderma*, 209-210:214-225.
51. Tivet, F.; Sá, J.C.M.; Lal, R.; Briedis, C.; Borszowski, P.R.; Santos, J.B.; Farias, A.; Eurich, G.; Hartman, D.C.; Jr. M.N.; Bouzinac, S.; Ségué, L. 2013. Aggregate C depletion by plowing and its restoration by diverse biomass-C inputs under no-till in sub-tropical and tropical regions of Brazil. *Soil & Till. Res.* 126: 203–218
52. Tivet, F.; Sá, J.C.M.; Lal, R.; Milori, D.M.B.P.; Briedis, C.; Letourmy, P.; Pinheiro, L.; Borszowski, P.R.; Hartman, D.C. 2013. Assessing humification and organic C compounds by laser-induced fluorescence and FTIR spectroscopies under conventional and no-till management in Brazilian Oxisols. *Geoderma*, 207-208: 71–81.
53. Ussiri, D.A.N. and R. Lal. 2013. Land Management Effects on Carbon Sequestration and Soil Properties in Reclaimed Farmland of Eastern Ohio, USA. *Geoderma* 3:1, 46-57.

#### ***d) Chapters in Multi-Authored Books***

54. Ibrahim, M. and Lal, R. 2013. Climate change and land use in the WANA region with a specific reference to Morocco. In M. Sivakumar et al. (Eds.) “Climate Change and Food Security in West Asia and North Africa”, Springer, Dordrecht, Netherlands. 89-114 pp.
55. Lal, R. 2013. Abating climate change and feeding the world through soil carbon sequestration. In Dent, David (Ed.) “Soil as World Heritage”. Springer, Dordrecht, Netherlands. 443-458pp.
56. Lal, R. 2013. Abating Climate Change and Feeding the World Through Soil Carbon Sequestration. In Dent, David (Ed.) “Soil as World Heritage.” Springer, Dordrecht, Netherlands. 443-458pp.
57. Lal, R. 2013. Climate Change and Soil Quality in the WANA Region. In M. Sivakumar et al. (Eds.) “Climate Change and Food Security in West Asia and North Africa”. Springer, Dordrecht, Netherlands. 55-74 pp.
58. Lal, R. 2013. Intensive Agriculture and the Soil Carbon Pool. Kang, M.S., Banga, S.S. (Eds) “Combating Climate Change: An Agricultural Perspective”. Taylor and Francis, Boca Raton, FL: 59-72.
59. Lal, R. 2013. Managing Terrestrial Carbon in a Changing Climate. In S. Kapur and S. Ers\_ahin (Eds.), “Soil Security, Mediterranean Studies”. Springer, Dordrecht, Netherlands. 1-18.
60. Lal, R. 2013. Principles of Soil Management. In Lal, R. and Stewart, B.A. (Eds). “Principles of Sustainable Soil Management in Agroecosystems”. Adv. Soil Sci. Taylor and Francis, Boca Raton, FL. 1-18 pp.
61. Lal, R. 2013. Role of soils in the short-term global carbon cycle for enhancing ecosystem services. In Sirota, Elena and Munteanu, Ana (Eds.) “Rational Use of Natural Resources – The Basis for Sustainable Development, Materials of the International Scientific Conference Celebrating Ten Years of the Faculty of Natural Sciences and Agroecology at Alecu Russo Balti State University, Republic of Moldova, October 10-11, 2013.” Alecu Russo Balti State University, Balti. 160-170 pp.
62. Lal, R. 2013. Soils and Ecosystem Services. In Lal, R., Lorenz K., Hüttl, R.R.J., Schneider, B.U. and von Braun, J. (Eds). “Ecosystem Services and Carbon Sequestration in the Biosphere”. Springer, Dordrecht, Netherlands: 11-38.
63. Lal, R. 2013. The nexus approach to managing water, soil and waste under changing climate and growing demands on natural resources. In UNU-FLORES “Advancing a nexus approach to the sustainable management of water, soil and waste: White Book.” UNU-FLORES, 19-40pp.
64. Lal, R. 2013. Vulnerability of Agroecosystems to Environmental Factors. In: Seastedt, TR and Suding KN (Eds.) “Climate Vulnerability: Understanding and addressing threats to essential resources. Volume 4. Vulnerability of Ecosystems to Climate”. Elsevier Press, NY 109-116
65. Lal, R., Lorenz, K., Hüttl, R.F., Schneider, B.U., von Braun, J. 2013. Societal Dependence on Soil's Ecosystem Services. In Lal, R., Lorenz K., Hüttl, R.R.J., Schneider, B.U. and von Braun, J. (Eds). 2013. “Ecosystem Services and Carbon Sequestration in the Biosphere”. Springer, Dordrecht, Netherlands: 1-10.
66. Lal, R., Lorenz, K., Hüttl, R.F., Schneider, B.U., von Braun, J. 2013. Research and Development Priorities for Global Soil-Related Policies and Programs. In Lal, R., Lorenz K., Hüttl, R.R.J., Schneider, B.U. and von Braun,

- J. (Eds). "Ecosystem Services and Carbon Sequestration in the Biosphere". Springer, Dordrecht, Netherlands: 431-455.
67. Lal, R., Stewart, B.A. 2013. Soil Management for Sustaining Ecosystem Services. In Lal, R. and Stewart, B.A. (Eds). "Principles of Sustainable Soil Management in Agroecosystems". Adv. Soil Sci. Taylor and Francis, Boca Raton, FL. 521-536 pp.
  68. Ortas, I. and Lal, R. 2013. Food Security and Climate Change in West Asia. In M. Sivakumar et al. (Eds.) "Climate Change and Food Security in West Asia and North Africa", Springer, Dordrecht, Netherlands. 207-238 pp.
  69. Qing, J., Xiangbin Kong, R. Lal 2013. Managing soil organic carbon concentration by cropping systems and fertilizer in the North China Plain. In Lal, R. and Stewart, B.A. (Eds). "Principles of Sustainable Soil Management in Agroecosystems". Adv. in Soil Sci. Taylor and Francis, Boca Raton, FL. 521-536 pp.
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  71. Sivakumar, MVK, Awawdeh, F., Haddad, N., Hamdan, I., Holderness, M., Lal, R., Ortas, I., Ramasamy, S. 2013. Adaptation Strategies for Different Sectors in the WANA Region – Summaries of Breakout Group Discussions. In M. Sivakumar et al. (Eds.) "Climate Change and Food Security in West Asia and North Africa", Springer, Dordrecht, Netherlands. 409-420 pp.
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  73. Srinivasarao, Ch., Venkateswarlu, B., Lal, Rattan, Singh, A.K., Kundu, Sumanta, Jakkula, Vijay Sandeep. 2013. Carbon Sink Capacity and Agronomic Productivity of Soils of Semiarid Regions in India. In Lal, R. and Stewart, B.A. (Eds). "Principles of Sustainable Soil Management in Agroecosystems". Adv. Soil Sci. Taylor and Francis, Boca Raton, FL. 423-476 pp.
  74. Tenywa, Moses M., Zake, Julius Y.K., Lal, R. 2013. Building upon Traditional Knowledge to Enhance Resilience of Soils in Sub-Saharan Africa. In Lal, R. and Stewart, B.A. (Eds). "Principles of Sustainable Soil Management in Agroecosystems". Adv. Soil Sci. Taylor and Francis, Boca Raton, FL. 109-140 pp.
  75. Zinn, Yuri L., Lal, R. 2013. Principles of Soil Management in Neotropical Savannas: The Brazilian Cerrado. In Lal, R. and Stewart, B.A. (Eds). "Principles of Sustainable Soil Management in Agroecosystems". Adv. Soil Sci. Taylor and Francis, Boca Raton, FL. 57-86 pp.

#### ***e) Invited Keynote Presentations***

76. Lal, R. "Mitigating Climate Change and Achieving Food Security by Managing Soil". Agricultural Media Summit, Buffalo, New York. 5 August 2013.
77. Lal, R. "Soil Stewardship". Caux Dialogue on Land and Security, Caux, Switzerland. 7-11 July 2013.
78. Lal, R. 2013. "Beyond Sustainable Intensification" SSSA Conference, Tampa, FL 3-6 November 2013.
79. Lal, R. 2013. "Climate Change and Agriculture". Columbus Club, Columbus, OH 10 October 2013.
80. Lal, R. 2013. "Climate Change and Agriculture". Explorer's Club, OSU Campus, Columbus, Ohio. 17 August 2013.
81. Lal, R. 2013. "Climate Change and Agriculture". IB TOK Forum Event. Upper Arlington High School, Upper Arlington, OH. 20 November 2013.
82. Lal, R. 2013. "Climate Change Recommendations" 2013 Borlaug Dialogue and Global Youth Institute, Des Moines, IA, 16-19 October 2013.
83. Lal, R. 2013. "Climate Strategic Agriculture". Gamma Sigma Delta Annual Awards Ceremony, The Ohio State University, Columbus OH, 12 April 2013.
84. Lal, R. 2013. "Comments of the Thread Ambassador" 2<sup>nd</sup> Global Soils Week: Losing Ground? Berlin, Germany 27-31 October 2013
85. Lal, R. 2013. "Conservation Agriculture in the Tropics". SANREM, Cambodia. 18 June 2013.
86. Lal, R. 2013. "Educating Future Agricultural Scientists and Academicians in India." Paper presented at the XI Agricultural Sciences Congress "Agricultural Education: Reshaping India's Future" Orissa University of Agriculture & Technology, Bhubaneswar, Odisha, India. 7-9 February 2013.
87. Lal, R. 2013. "Food Security and Climate Change". Rothamsted, U.K. 7 October 2013.
88. Lal, R. 2013. "Roles of Soil in Sustaining Society and the Environment" 2013 IUSS Meeting. Potsdam, Germany. 26-27 February 2013.
89. Lal, R. 2013. "Sequestration of Soil Carbon as Secondary Carbonates" AGU Fall Meeting. San Francisco, CA. 9-13 December 2013.

90. Lal, R. 2013. "Soil Carbon Management for Climate Change". IUSS Global Soil Carbon Conference, International Union of Soil Sciences. Madison, Wisconsin. 2-5 June 2013.
91. Lal, R. 2013. "Soil Carbon Sequestration" Nigerian Society of Soil Science, Nigeria. February 2013.
92. Lal, R. 2013. "Soil Carbon Sequestration". Soil Carbon Sequestration, for climate, food security and ecosystem services, Reykjavik, Iceland, 25-30 May 2013.
93. Lal, R. 2013. "Sustainable Agriculture and Natural Resources Management" Virginia Tech, Blacksburg, VI. 4-6 April 2013.
94. Lal, R. 2013. "Sustainable Intensification To Address Climate Change and Advance Food Security In Africa" Sustainable Intensification To Address Climate Change and Advance Food Security In Africa. SAU, Morogo, Tanzania. 12-16 November 2013.
95. Lal, R. 2013. "The Water Nexus." 2013 Annual AAAS Conference: The Beauty and Benefits of Science. 14-18 February 2013. Boston, MA.
96. Lal, R. 2013. "Towards Sustaining Agriculture." Institut de l'Agriculture Durable. Paris, France. 22-26 January 2013.

#### ***f) Voluntary Contributions***

97. Araujo, M.A., Andrede, A.B., Zinn, Y.L., Lal, R., Bigham, J.M. 2013. Specific surface area and magnetic susceptibility related to the soil mineralogy in Southern Minas Gerais, Brazil. XXXIV Congresso Brasileiro de Ciência Do Solo, 28 July – 2 August 2013.
98. Beniston, J., Lal, R., Mercer, K. 2013. Soil quality evaluation of urban market gardens. ASA, CSSA & SSSA International Annual Meetings, Tampa Florida, 3-6 November 2013
99. DuPont, S.T.; J. Beniston, S.W. Culman, J. Glover, A. Hodson, R. Lal, H. Ferris. 2013. Perennial Roots: A Key Driver to Ecosystem Stability and Long Term Yield. Water, Food, Energy & Innovation for a Sustainable World. ASA, CSSA & SSSA International Annual Meetings, Tampa Florida. Nov. 3-6, 2013.
100. Gautam, S., S. Kumar, R. Lal, J. Bonta, J. Witter, Y. Xie, R. Moore, E. Mbonimpa, and S. Jiang. 2013. Apex Model Simulation of Runoff and Non-Point Source Pollutants From Watersheds Managed With No-Till Management. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Tampa, FL. November 03-06, 2013.
101. Lal, R., Spring, A., Welch, R. 2013. Sustainable Intensification Innovation Lab. Prospects and Opportunities: Recommendations by the EET of SANREM Innovation Lab. USAID/BFS.
102. Mukherjee, A., and Lal, R. 2013. Tillage-Effects on Quality of Two Contrasting Soils in Ohio; ASA, CSSA and SSSA Annual Meeting, Tampa, Florida, November 2–November 7, 2013 (poster).
103. Nakajima, T., Mukherjee, A., Lal, R., and Fausey, N.R. 2013. Impacts of Tillage and Drainage on Soil and Water Quality under Corn-based Cropping Systems; Climate & Corn-based Cropping Systems CAP Annual Meeting, West Lafayette, Purdue University, July 29-August 1, 2013 (poster).
104. Vincent Obade and Rattan Lal. A One Step Simplified Indicator for Rating Soil Quality. USDA CSCAP Annual Meeting, July 29<sup>th</sup> to August 1<sup>st</sup>, 2013 Location: Purdue University, West Lafayette, USA.
105. Vincent Obade and Rattan Lal. Using Meta Analyses to assess Pedo-variability under Different Land Uses and Soil Management in Central Ohio, USA. Water, Food, Energy and Innovation for a Sustainable World. ASA, CSSA and SSSA International Annual Meetings. 3- 6 November 2013. Location: Tampa Convention Center and the Marriott Tampa Waterside Hotel, Tampa, Florida, USA.
106. Zhang, H.L., Lal, R., Chen, F. 2013. Crop residue management and soil carbon sequestration in China. In: The Fourth International Symposium for Farming Systems Design, Lanzhou, Gansu Province, China, 19-22 August 2013. Gansu Science and Technology Press. 75-76.

**a) Books Written****b) Books Edited**

1. Lal, R. and B.A. Stewart (Eds.) 2012. Soil Water Management and Agronomic Productivity. CRC/Taylor and Francis. Boca Raton, FL, 568 pp.
2. Lal, R., K. Lorenz, R. Huttler, B.U. Schnieder and J. von Braun. (Eds) 2012. Recarbonization of the Biosphere. Springer Verlaag, Holland, 545 pp.
3. Sejian, V., J. Lakritz, T. Ezeji, and R. Lal. 2012. Environmental Stress and Amelioration in Livestock Production. Springer Verlaag, Holland, 569 pp.
4. Lal, R. and B. Augustin (Eds.) 2012. Carbon Sequestration in Urban Ecosystems. Springer, Dordrecht, Netherlands, 383 pp.
5. Lal, R. and B.A. Stewart (Eds.). 2012. World Soil Resource and Food Security. CRC/Taylor and Francis. Boca Raton, FL, 560 pp.

**c) Refereed Journal Articles**

6. Adhikari, S., R. Lal and B.C. Sahu. 2012. Carbon sequestration in the bottom sediments of aquaculture ponds of Orissa. *Ecol. Eng.* 47:198-202.
7. Ambachew Demessie, Bal Ram Singh, Rattan Lal & Line Tau Strand. 2012. Leaf litter fall and litter decomposition under Eucalyptus and coniferous plantations in Gambo District, southern Ethiopia, *Acta Agriculturae Scandinavica, Section B & Soil & Plant Science*, 62:5, 467-476.  
<http://dx.doi.org/10.1080/09064710.2011.645497>
8. Bonin, C. and Lal, R. 2012. Physical properties of an Alfisol under biofuels crops in Ohio *J. Technol. Innovations Renewable Energy*, 1, 1-13.
9. Bonin, C. and R. Lal. 2012. Agronomic and ecological implications of biofuels. *Adv. Agron.* 117:1-50.
10. Bonin, C. and R. Lal. 2012. Bioethanol potentials and life-cycle assessments of biofuel feedstocks. *Crit. Rev. Plant Sci.* 31:271-289.
11. Bonin, C., R. Lal, M. Schmitz and S. Wulschlagger. 2012. Soil physical and hydrological properties under three biofuel crops in Ohio. *Acta Agric. Scandinavica (B) - Soil & Plant Sciences*. 62(7): 595-603. Doi: 10.1080/09064710.2012.699309
12. Culman, S.W., S.S. Snapp, M.A. Freeman, M.E. Schipanski, J. Beniston, R. Lal et al. 2012. Towards greening of urban landscape. *Soil Sci. Soc. Am. J.* 76:494-504.
13. Demessie, A., B.R. Singh, T. Borreson, and R. Lal. 2012. Effect of eucalyptus and coniferous plantations on soil properties and quality in Gambo District, southern Ethiopia. *Acta Agric. Scandinavica (B) Soil & Plant Sci.* 62: 455-466.
14. Demmessie, A., B.R. Singh, R. Lal and T. Strand. 2012. Leaf litter fall and leaf decomposition under Eucalyptus and coniferous plantations in Gambo District, Southern Ethiopia. *Acta Agric. Scandinavica (B) Plant & Soil Sci.* 62: 467-476.
15. Feller, C., E. Blanchart, M. Bernoux, R. Lal and R. Manlay. 2012. Soil fertility concepts over the past two centuries: the importance attributed to soil organic matter in developed and developing countries. *Archives in Agron. & Soil Sci.* 58(suppl): 3-21.
16. Kahlon, M.S., N.R. Fausey and R. Lal. 2012. Tillage effects on corn soil-plant-water continuum in Alfisols of Southern Ohio. *J. Agric. Sci.* 4:35-47.
17. Koch, A., McBratney, A., and Lal, R. 2012. Global Soil Week: Put soil security on global agenda. *Nature*. 492:186.
18. Koch, Andrea; McBratney, Alex; Adams, Mark; Field, Damien; Hill, Robert; Lal, Rattan; Abbott, Lynette; Angers, Denis; Baldock, Jeffrey; Barbier, Edward; Binkley, Dan; Bird, Michael; Bouma, Johan; Chenu, Claire; Crawford, John; Butler Flora, Cornelia; Goulding, Keith; Gunwald, Sabine; Hempel, Jon; Jastrow, Julie; Lehmann, Johannes; Lorenz, Klaus; Minasny, Budiman; Morgan, Cristine; O'Donnell, Anthony; Parton, William; Rice, Charles; Wall, Diana; Whitehead, David; Young, Iain; Zimmermann, Michael. 2012. Soil Security: Solving the Global Soil Crisis. *Global Policy*.
19. Kong, X., B. Li, R. Lal, L. Han, H. Lei, K. Li, and Y. Bai. 2012. Soil Organic Carbon Stock And Crop Yields in Huang-Huai-Hai Plains, China. *J. Agric. Sci.* 4(12): 140-154.
20. Kumar, S., A. Kadono, R. Lal, and W. Dick. 2012. Long-Term Tillage and Crop Rotations for 47–49 Years Influences Hydrological Properties of Two Soils in Ohio. *Soil Sci. Soc. Am. J.* 76:1798-1809.

21. Kumar, S., Lal, R. and D. Liu. 2012. A geographical weighted regression kriging approach for mapping soil organic carbon stock. *Geoderma* 189:627-634.
22. Kumar, S., R. Lal and C.D. Lloyd. 2012. Assessing spatial variability in soil characteristics with geographically weighted principal components. *Computational Geosciences*. 16:3, 827-835.
23. Lal, R. 2012. Climate change and soil degradation mitigation by sustainable management of soils and other natural resources. *Agric. Res.* 1(3): 199-212.
24. Lal, R., J.A. Delgado, J. Gulliford, D. Nielsen, C.W. Rice and R.S. Van Pelt. 2012. Adapting agriculture to drought and extreme events. *J. Soil and Water Conserv.* 67(6): 162A-166A.
25. Lenka, N.K. and R. Lal. 2012. Soil-related Constraints to the Carbon Dioxide Fertilization Effect. *Crit. Rev. Plant. Sci.* 31(4):342-357
26. Liang, Q., H. Chen, Y. Gong, M. Fan, H. Yang, R. Lal and Y. Kuzyakov. 2012. Effects of 15 years of manure and inorganic fertilizers on soil organic carbon fractions in a wheat-maize system in the North China Plain. *Nutr. Cycl. In Agroecosys.* 92: 21-33.
27. Liu, R. and R. Lal. 2012. Nanoeenhanced materials for reclamation of mine lands and other degraded soils: a review. *Journal of Nanotechnology*. Vol. 2012, article ID 461468, 18 pages. ([www.hindawi.com/journals/int/aip/460468.pdf](http://www.hindawi.com/journals/int/aip/460468.pdf)).
28. Ortas, I. and R. Lal. 2012. Long-term phosphorus application impacts on aggregate-associated carbon and nitrogen sequestration in a Vertisol in the Mediterranean Turkey. *Soil Sci.* 177(40; 241-250. (doi:10.1097/ss.ob013e318245d11c).
29. Selhorst, A. and R. Lal. 2012. Effects of climate and soil properties on U.S. homelawn soil organic carbon concentration and pool. *Environmental Mangement*. (DOI: 10.1007/s00207-012-9956-9) 50:1177-1192.
30. Srinivasan, V.H.P. Mahewarappa and R. Lal. 2012. Long-term effects of topsoil depth and amendments on particulate and non-particulate carbon fractions in a Miamian soil of central Ohio. *Soil and Tillage Res.* 121:10-17.
31. Srinivasarao, Ch., B. Venkateswarlu, R. Lal, A.K. Singh, K.P.R. Vittal, S. Kundu, S.R. Singh, and S.P. Singh. 2012. Long-term effects of soil fertility management on carbon sequestration in a rice-lentil cropping system of the Indo-Gangetic Plains. *Soil Sci. Soc. Am. J.* 76: 168-178.
32. Srinivasarao, Ch., B. Venkateswarlu, R. Lal, A.K. Singh, K.P.R. Vittal, S. Kundu G.N. Gajanan, and B. Ramachandrappa. 2012. Soil carbon sequestration and agronomic yield of ground nuts-based systems on an Alfisol in southern India. *Eur. J. Agron.* 43:40-48.
33. Srinivasarao, Venkateswarlu, B., Lal, R., Singh, A.K., Vittal, K.P.R., Sharma, S.K., Jain, M.P., Ravindra Chary, G. 2012. Sustaining agronomic productivity and quality of a Vertisolic soil (Vertisol) under soybean-safflower cropping system in semi-arid central India. *Can. J. Soil Sci.* 92: 771-785. DOI: 10.4141/cjss2011-098
34. Srinivasarao, Ch., A.N. Deshpande, B. Venkateswarlu, R. Lal, A.K. Singh, K.P.R. Vittal, P.K. Mishra, J.V.N.S. Prasad, U.K. Mandal and K.L. Sharma. 2012. Grain yield and carbon sequestration potential of post monsoon sorghum cultivation in Vertisols in semi-arid tropics of central India. *Geoderma* 175/176:90-97.
35. Srinivasarao, Ch., B. Venkateswarlu, R. Lal, A.K. Singh, S. Kundu, K.P.R. Vittal, S.R. Singh, B.K. Ramachandrappa and G.N. Gajanan. 2012. Long-term effects of crop residues and fertility management on carbon sequestration and agronomic productivity of groundnut-finger millet rotation on an Alfisol in southern India. *Int. J. Agric. Sust.* (<http://dx.doi.org/10.1080/14735906.2012.662392>): 10(3):1-15.
36. Stavi, I. R. Lal, S. Jones and R.C. Reeder. 2012. Implications of cover crops on soil quality and geodiversity in a moist-temperate region in the Midwestern U.S. *Land Degrad & Dev* 23:322-330 (DOI: 10.1002/ldr.2148)

#### **d) Chapters in Multi-Authored Books**

37. Beniston, J. and R. Lal. 2012. Improving soil quality for urban agriculture in the north central U.S. In R. Lal and B. Augustin (Eds) "Carbon Sequestration in Urban Ecosystems", Springer, Dordrecht, Netherlands: 279-314.
38. Coehlo, S. T., O. Agbenyega, K.H. Erb, H. Haberl, M. Hoogwijk, R. Lal, O. Lucon, O. Masera and J. R. Moreira, 2012: Chapter 20 - Land and Water: Linkages to Bioenergy. In *Global Energy Assessment - Toward a Sustainable Future*, International Institute for Applied Systems Analysis, Vienna, Austria and Cambridge University Press, Cambridge, UK and New York, NY, USA: 1482-1525.
39. Dubey, A., and R. Lal 2012. Changes in precipitation during the twentieth century across a latitude gradient in the United States. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". *Advances in Soil Science*, Taylor and Francis, Boca Raton, FL: 63-83.
40. Ibrahim, M. R. Lal, E.A. Bary, and A. Swelam. 2012. Water resources and agronomic productivity in West Africa and North Africa region. In R. Lal and B.A. Stewart (Eds.) "Soil Water and Agronomic Productivity". *Advances in Soil Sci.* Taylor and Francis, Boca Raton, FL: 163-185.

41. Ibrahim, M., R. Lal, E.A. Bary, and A. Swelam 2012. Water resources and agronomic productivity in West Asia and North Africa Region. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". Advances in Soil Science, Taylor and Francis, Boca Raton, FL: 163-185.
42. Jungkunst, H.F., J.P. Krüger, F. Heitkamp, S. Erasmí, S. Glatzel, S. Fiedler, and R. Lal. 2012 Accounting more precisely for peat and other soil carbon resources. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 127-157.
43. Kahlon, M.S., R. Lal, P.S. Lubana. 2012. Sustaining groundwater use in South Asia. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". Advances in Soil Science, Taylor and Francis, Boca Raton, FL: 131-162
44. Lal, R. 2012. Research needs for credible data on soil resources and degradation. In R. Lal and B.A. Stewart (Eds.) "World Soil Resources and Food Security". Taylor and Francis, Boca Raton, FL: 539-546.
45. Lal, R. 2012. Towards greening of urban landscape. In R. Lal and B. Augustin (Eds) "Carbon Sequestration in Urban Ecosystems", Springer, Dordrecht, Netherlands: 373-384
46. Lal, R. 2012. Urban ecosystems and climate change. In: R. Lal and Bruce Augustin (Eds.) "Carbon Sequestration in Urban Ecosystems", Springer, Dordrecht, Holland: 3-20.
47. Lal, R. 2012 Climate change mitigation by managing the terrestrial biosphere. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 17-39.
48. Lal, R. 2012. Crop residues for biofuel and increased soil erosion hazards. In D. Pimental (Ed.) "Global economic and environmental Aspects of biofuels." CRC: Taylor & Francis, Boca Raton, FL. 397-413pp.
49. Lal, R. 2012. Crop residues for biofuels and increased soil erosion hazard. In D. Pimentel (ed.). Global Economic and Environmental Aspects of Biofuels. CRC Press/Taylor and Francis, Boca Raton, FL: 397-413.
50. Lal, R. 2012. Soil Management in the Himalayan region for sustainable production and climate change mitigation. In M.K. Balla, R.M. Bajracharya and S. Sharma (Eds) "Mountain Resource Management in a Changing Environment" Proc. Intl. Symposium, 29-31 May 2012. Tribhuvan University, Kathmandu, Nepal: 1-19.
51. Lal, R. 2012. Soil water and agronomic production. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". Advances in Soil Science, Taylor and Francis, Boca Raton, FL: 43-61.
52. Lal, R. 2012. Supporting ecosystem services with conservation agriculture. In A. Franzluebbers (ed) "Supporting Ecosystem Services with Conservation Agriculture Systems", Renewable Agric. And Food Systems, Cambridge, U.K.
53. Lal, R. 2012. Toward enhancing storage of soil water and agronomic productivity. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". Advances in Soil Science, Taylor and Francis, Boca Raton, FL: 559-567.
54. Lal, R. 2012. Vulnerability of agroecosystems to environmental changes. In "Climate Vulnerability". Elsevier Holland.
55. Lal, R. and B.A. Stewart. 2012. Sustainable management of soil resources and food security. In R. Lal and B.A. Stewart (Eds.) "World Soil Resources and Food Security". Taylor and Francis, Boca Raton, FL: 1-10.
56. Lal, R. and B.A. Stewart. 2012. Sustainable management of soil resources and food security. In "World Soil Resources and Food Security" Edited by Lal, R. and B.A. Stewart. Boca Raton: Taylor & Francis, 2012.
57. Lal, R., and K. Lorenz. 2012 Carbon sequestration in temperate forests. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 187-201.
58. Lal, R., K. Lorenz, R.F. Hüttl, B.U. Schneider, and J. von Braun. 2012. Terrestrial biosphere as a source and sink of atmospheric carbon dioxide. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 1-15.
59. Lal, R., K. Lorenz, R.F. Hüttl, B.U. Schneider, and J. von Braun. 2012 Research and development priorities towards recarbonization of the biosphere. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 533-543.
60. Lal, Rattan (2012). "Agronomic Interactions with CO<sub>2</sub> Sequestration". In Robert A. Meyers (ed.) Encyclopedia of Sustainability Science and Technology, Springer Verlag, Berlin. Volume 1, pp. 161--167.
61. Lorenz, K., and R. Lal. 2012. Carbon storage in urban forest soils of Columbus, OH, USA. In: Lal, R., Augustin, B.J. (Eds.) Carbon Sequestration in Urban Ecosystems. Springer, Dordrecht, The Netherlands: 139-160.
62. Lorenz, K., and R. Lal. 2012. Terrestrial carbon management in urban ecosystems and water quality. In: Lal, R., Augustin, B.J. (Eds.) Carbon Sequestration in Urban Ecosystems. Springer, Dordrecht, The Netherlands: 73-102.
63. Lorenz, K., and R. Lal. 2012 Cropland soil carbon dynamics. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 303-345.
64. Lorenz, K., P.J. Crutzen, R. Lal, and K. Töpfer. 2012 Atmospheric chemistry and climate in the anthropocene. In R. Lal et al. (Eds) "Recarbonization of the Biosphere". Springer, Dordrecht, Holland: 41-57



65. Nguyen, L., F. Zapata, R. Lal and G. Dercon, 2012. Role of nuclear and isotopic techniques in sustainable land management: achieving food security and mitigating impacts of climate change. In R. Lal and B.A. Stewart (Eds.) "World Soil Resources and Food Security". Adv. Soil Sci., Taylor and Francis, Boca Raton, FL: 345-418.
66. Selhorst A., and R. Lal. 2012. Carbon sequestration in golf course turfgrass systems and recommendation for the enhancement of the climate change mitigation potential. In R. Lal and B. Augustin (Eds) "Carbon Sequestration in Urban Ecosystems", Springer, Dordrecht, Netherlands: 249-264.
67. Stewart, B.A., and R. Lal 2012. Manipulating crop geometries to increase yields in dryland areas. In R. Lal and B.A. Stewart (Eds) "Soil Water And Agronomic Productivity". Advances in Soil Science, Taylor and Francis, Boca Raton, FL: 409-425.
68. Zirkle, G. and R. Lal. 2012. Modeling Carbon Sequestration in the U.S. Residential Landscape. In R. Lal and B. Augustin (Eds) "Carbon Sequestration in Urban Ecosystems", Springer, Dordrecht, Netherlands: 265-278.

#### ***e) Invited Keynote Presentations***

69. Chen, L., B. Campbell, S. Bilen, T. Nakajima, R. Shreshtra, J. Kendell, M. Wu, Y. Tian, P.A. Jacinthe, R. Lal and W. Dick, 2012. Tillage and rotation impacts on greenhouse gas fluxes from two long-term experiments in Ohio, USA. Third International Conference on Carbon Sequestration and Climate Change Mitigation in Agriculture", 21-27 July 2012, Beijing, China.
70. Lal, R. 2012. Adapting Drylands to the Climate Change. 2012 Drylands, Deserts and Desertification Conference 12-15 November 2012, Sede Boger, Ben Gurion University, Israel.
71. Lal, R. 2012. Addressing the global soil crisis. Workshop "Global Soil Crisis", 24 April 2012 U.N. HQ, New York.
72. Lal, R. 2012. Carbon sequestration and climate change. Soil as a World Heritage, 22-23 May 2012. Balti, Moldova.
73. Lal, R. 2012. Global Food Security: Challenges and Opportunities. Plenary Keynote Presentation, EcoSummit 2012, 30 September-5 October 2012, Columbus, OH, USA.
74. Lal, R. 2012. Healing the Climate and Feeding the World. Nationwide Insurance, 4 April 2012, Columbus, OH.
75. Lal, R. 2012. Managing Soils for Feeding the Carbon Civilization. Golden Jubilee Symposium, 27-28 November, 2012, PAU, Ludhiana, India.
76. Lal, R. 2012. Nexus of Soil, Water, Waste. Inaugural Lecture "UNU - Institute for Integrated Management of Material Fluxes and of Resources", 10 December 2012, Dresden, Germany. Opening Ceremonies Proceedings, UNU-Flores. 8-23.
77. Lal, R. 2012. Restoring Degraded Land and the Flow of Its Provisionary Services. 2012 Drylands, Deserts and Desertification Conference 12-15 November 2012, Sede Boger, Ben Gurion University, Israel.
78. Lal, R. 2012. Restoring land degradation by carbon sequestration. Intl. Congress on "Land Degradation and Challenges In Sustainable Soil Management", 15-17 May 2012, Cesme, Izmir, Turkey.
79. Lal, R. 2012. Soil Carbon and the Science of Soil Security. First Global Soil Week, IASS (Postdam) 19-22 November 2012, Berlin, Germany.
80. Lal, R. 2012. Soil Organic Matter Management for Sustainable Production and Climate Change. Intl. Symposium on Mountain Resource Management in a Changing Environment. Aquatic Ecology Centre. 29-31 May 2012, Kathmandu, Nepal.
81. Lal, R. 2012. Soil Organic Matter: The Elixir of Terrestrial Life. First Global Soil Week, IASS (Postdam) 19-22 November 2012, Berlin, Germany.
82. Lal, R. 2012. Solutions Underfoot. The Winter College 2012, 17-18 Feb. 2012, Naples, FL.
83. Lal, R. 2012. Strategies for Addressing Land Degradation. First Global Soil Week, IASS (Postdam) 19-22 November 2012, Berlin, Germany.
84. Lal, R. 2012. U. Sariel, Bo Boer. Zero Net L and Degradation, NCCD, White Paper from Rio+20, Bonn, Germany.

#### ***f) Voluntary Contributions***

85. Beniston, J., J. Dungait, M. Shipitalo, R. Lal, S. Jones, E. Dayton. 2012. Soil erosion and macronutrient fluxes under simulated rainfall: the effects of tillage and crop residue removal. Soil Science Society of America Meeting, Cincinnati OH, 22-25 October 2012.
86. Bonin, C., R. Lal. 2012. Impacts of biofuel feedstock on soil properties and soil carbon stocks. Eastern Native Grass Symposium, Charlottesville, VA, 1-4 October 2012.

87. Kumar, S., A. Kadono, R. Lal, and W. Dick. 2012. Long-term Tillage and Cropping Systems Influences on Soil Properties and Corn Yield. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October 2012.
88. Kumar, S., J. Witter, R. Lal, R. Moore, J. Bonta, and Y. Xie. 2012. Simulation of Non-Point Source Pollution Losses from Watersheds Managed under Diverse Land Management. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October 2012.
89. Kumar, S., Kadono, A, Nakajima, T., and R. Lal. 2012. Green House Gas Fluxes as Influenced by No-tillage and Chisel Tillage Under Drainage and Non-Drainage Systems. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October, 2012
90. Kumar, S., T. Nakajima, and R. Lal. 2012. Effects of No-Tillage and Diverse Cropping Systems On Soil Organic Carbon Sequestration. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October 2012.
91. Lui, R., R. Lal. 2012. A laboratory study on improvements of mine soil quality for re-vegetation through various amendments. Soil Science Society of America Meeting, Cincinnati OH, 22-25 October 2012.
92. Mukherjee, A., R. Lal. 2012. Impacts of soil physical quality by organic and inorganic amendments. Soil Science Society of America Meeting, Cincinnati OH, 22-25 October 2012.
93. Nakajima, T., and R. Lal. 2012. No-tillage and drainage influences on gas diffusivity of an alfisol. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October 2012.
94. Nakajima, T., S. Kumar, and R. Lal. 2012. Comparison of Green House Gas Fluxes Monitored with Photoacoustic Spectroscopy and Gas Chromatograph. Presentation at the ASA-CSSA-SSSA. International Annual Meeting at Cincinnati, OH. 20-24 October 2012.
95. Obade, V., R. Lal. 2012. Investigating the impact of different land management practices on soil quality. Soil Science Society of America Meeting, Cincinnati OH, 22-25 October 2012.
96. Ortas, I., Lal, R., Kapur, S. 2012. Significance of carbon in the development of soil structure. In 8<sup>th</sup> International Soil Science Congress on “Land Degradation and Challenges in Sustainable Soil Management”. 15-17 May 2012. Cesme, Izmir- Turkey. P. 192.

***g) Miscellaneous***

97. Lal, R. 2012. World Soils and the Carbon Cycle in Relation to Climate Change and Food Security. Global Soils Week, Issue Paper, 52pp. [http://globalsoilweek.org/wp-content/uploads/2013/05/GSW\\_IssuePaper\\_Soils\\_in\\_the\\_Global\\_Cycle.pdf](http://globalsoilweek.org/wp-content/uploads/2013/05/GSW_IssuePaper_Soils_in_the_Global_Cycle.pdf)
98. Lal, R. U. Safriel and B. Boer. 2012. Zero Net Land Degradation. UNCCD Position Paper for Rio+20. Bonn, Germany.
99. Sa, J. de Moraes, Santos, J. B. dos, R. Lal 2012. An on-farm assessment of carbon monitoring and mapping scaling up in no-till fields. FAO/UNPC, Rome, Italy 57 pp.

**a) Books Written****b) Books Edited**

1. Lal, R., M. Sivakumar, M.A. Faiz, A.N.M. Mustafizur Rahman and K.R. Islam (Eds) 2011. Climate Change and Food Security in South Asia. Springer, Holland, 600 pp.

**c) Refereed Journal Articles**

2. Buenemann, M., C. Martius, J.W. Jones, S. Herrmann, D. Klein, M. Mulligan, M.S. Reed, M. Winslow, R.A. Washington-Allen, R. Lal and Ojima, D. 2011. Integrative geospatial approaches for the comprehensive monitoring and assessment of land management sustainability: rationale, potential and characteristics. *Land Degrad. & Develop.* 22: 226-239.
3. Cowie, A., T. Penman, L. Gorissen, M. Winslow, J. Lehman, T. Tyrrell, S. Twomlow, A. Wilkes, R. Lal, J. Jones, A. Paulsch, K. Kellner and M. Akhtar-Schuster. 2011. Towards sustainable land management in the drylands: scientific connections in monitoring and assessing dryland degradation, climate change and biodiversity. *Land Degrad. & Develop.* 22: 248-260.
4. Delgado, J.A., P. Groffman, M.A. Nearing, T. Goddard, D. Reicosky, R. Lal, N. Kitchen, C. Rice and D. Towery. 2011. Conservation practices to mitigate and adapt to climate change. *J. Soil Water Conc.* 66(4): 118A-129A.
5. Demessie, A., B.R. Singh, and R. Lal. 2011. Soil carbon and nitrogen stocks under plantations in Gambo District, Southern Ethiopia. *J. Sust. For.* 30: 496-517.
6. Gísladóttir, G., E. Erlendsson and R. Lal. 2011. Soil evidence for historical human-induced land degradation in West Iceland. *Appl. Geochemistry*. 26: S28-S31.
7. Jimenez, J.J., K. Lorenz and R. Lal. 2011. Organic carbon and nitrogen in soil particle-size aggregates under dry tropical forests from Guanacaste Catena. 86: 178-191.
8. Jung, J.Y. and R. Lal. 2011. Impacts of nitrogen fertilization on biomass production of switchgrass (*Panicum Virgetum*) and changes in soil organic carbon in Ohio. *Geroderma* 166: 145-152.
9. Jung, J.Y., R. Lal, and D.A.N. Ussiri. 2011. Changes in CO<sub>2</sub>, C-13 abundance, inorganic nitrogen, beta-glucosidase, and oxidative enzyme activities of soil during the decomposition of switchgrass root carbon as affected by inorganic nitrogen additions. *Biol. Fert. Soils*. 47: 801-813. (DOI:10.1007/S0034-011-0583-Z).
10. Jung, J.Y., R. Lal, J.D. Jastrow and D.D. Tyler 2011. Nitrogenous fertilizer effects on soil structural properties under switchgrass. *Agroecosyst. Env.* 141: 215-220.
11. Kahlon, M.S. and R. Lal. 2011. Enhancing green water in soils of South Asia. *J. Crop Imp.* 25:101-133.
12. Kumar, S. and R. Lal. 2011. Mapping the organic carbon stocks of surface soils using local spatial interpolation. *J. Env. Monit.* 13(11): 3125-3135.
13. Lal, R. 2011. Land degradation and pedological processes in a changing climate. *Pedologist* 315-325.
14. Lal, R. 2011. Reducing emissions and sequestering carbon in agroecosystems. *Food Policy* 36:S33-S39.
15. Lal, R. 2011. Sustainable soil management under changing climate and desertification. *Annals of Arid Zone* 50: 279-296.
16. Lal, R., J.A. Delgado, P.M. Groffman, N. Millar, C. Dell and A. Rotz. 2011. Management to mitigate and adapt to climate change. *J. Soil Water Cons.* 66(4): 276-285.
17. Lorenz, K., Lal, R and Jiménez, J.J. 2011. Characterization of soil organic matter and black carbon in dry tropical forests of Costa Rica. *Catena* 158 (3-4): 315-321.
18. Lorenz, K., Lal, R., Shipitalo, M.J. 2011. Stabilized soil organic carbon pools in subsoils under forest are potential sinks for atmospheric CO<sub>2</sub>. *Forest Science* 57:1, 19-25.
19. Maheswarappa, H.P., V. Srinivasan and R. Lal. 2011. Carbon footprint and sustainability of agricultural production systems in India. *J. Crop Imp.* 25 (4): 303-322.
20. Mishra, U., R. Lal, D. Liu, and M. Van Meirvenne. 2010. A geographic weighted regression approach to predict the spatial variation of soil organic carbon stock at a regional scale. *Soil Sci. Soc. AM. J.* 74: 906-914.
21. Sejian, V. Rotx, C.A., Lakritz, J., Ezeji, T. and R. Lal. 2011. Modeling of greenhouse gas emissions in dairy farms. *J. Animal Sci. Adv.* 1:12-30.
22. Sejian, V., Lal, Rattan; Lakritz, Jeffrey; Ezeji, Thaddeus. 2011. Measurement and prediction of enteric methane emission. *INTERNATIONAL JOURNAL OF BIOMETEOROLOGY*, 55:1, 1-16.
23. Sejian, V., Rotz, C.A., Lakritz, J., Ezeji, T. and R. Lal. 2011. Forage and flax seed impact on enteric methane emission in dairy cows. *Res. J. Vet. Sci.* 4:1-8.

24. Shrestha, R.K., R. Lal. 2011. Changes in physical and chemical properties of soil after surface mining and reclamation. *Geoderma* 161(3-4): 168-176.
25. Srinivasrao, Ch., B. Venkateswarlu, R. Lal, A.K. Singh, S. Junda, K.P.R. Vittal, J. J. Patel and M.M. Patel. 2011. Long-term manuring and fertilizer effects on depletion of soil organic carbon stocks under pearl millet-cluster bean-castor rotation in western India. *Land Degrad. & Devel.* (doi: 10.1002/ldr.115s), 11pp.
26. Stavi, I. and R. Lal. 2011. Agroforestry and biochar to offset climate change: a review. *Agron. Sustain. Dev.* (DOI: 10.1007/s13593-012-0081-1).
27. Stavi, I. and R. Lal. 2011. Loss of soil resources from water eroded vs. uneroded cropland sites under simulated rainfall. *Soil Use & Management*. 27: 69-76 (DOI:10.1111/j.1475-2743.2010.00312.x)
28. Stavi, I. and R. Lal. 2011. Variability of soil physical quality and erodibility in a water-eroded cropland. *Catena* 84: 148-155 (DOI:10.1016/j.catena.2010.10.006)
29. Stavi, I. and R. Lal. 2011. Variability of soil physical quality in uneroded, eroded and depositional cropland sites. *Geomorphology*. 125: 85-91 (DOI:10.1016/j.geomorph.2010.09.006)
30. Stavi, I., R. Lal and L.B. Owens. 2011. Effects of cattle grazing during the dormant season on soil surface hydrology and physical quality in a moist temperate region, *Ecohydrology*. 4: 106-114 (DOI:10.1002/eco.137)
31. Stavi, I., R. Lal and L.B. Owens. 2011. On-farm effects of continuous no-till versus occasional tillage on soil quality and crop yields in eastern Ohio. *Agron. Sust. Dev.* 31(3): 475-482 (DOI:10.1007/s13593-011-0006-4)
32. Wielopolski, L., A. Chatterjee, S. Mitra and R. Lal. 2011. In-situ determination of soil carbon pool by inelastic neutron scattering. *Geoderma* (doi:10.1016/j.Geoderma.2010.10.009). 160: 394-399.
33. Zinn, Y.L., R. Lal and V.S. Resck. 2011. Eucalypt plantation effects on organic carbon and aggregation of three different-textured soils in Brazil. *Soil Sci. Soc. Am. J.* 56:1743-1750.
34. Zirkle, G., R. Lal and B. Augustin. 2011. Modeling carbon sequestration in home lawns. *HortScience*. 46: 808-814.

#### ***d) Chapters in Multi-Authored Books***

35. Lal, R. 2011. Adapting to Climate Change: Research and Development Priorities. In: Lal, R., M. Sivakumar, M.A. Faiz, A.N.M. Mustafizur Rahman and K.R. Islam (Eds) 2010. *Climate Change and Food Security in South Asia*. Springer, Holland: 587-596.
36. Lal, R. 2011. Agronomic interactions with CO<sub>2</sub> sequestration. In R.A. Meyers (Ed.) "Encyclopedia of Sustainability Science and Technology". Springer, Berlin, Germany.
37. Lal, R. 2011. Climate of South Asia and the Human Wellbeing. In: Lal, R., M. Sivakumar, M.A. Faiz, A.N.M. Mustafizur Rahman and K.R. Islam (Eds) 2010. *Climate Change and Food Security in South Asia*. Springer, Holland: 3-12.
38. Lal, R. 2011. Organic matter effects on soil physical properties and processes. In J. Glinski, J. Horabik and J. Lipiec (Eds.) "Encyclopedia of Agrophysics". Springer, Dordrecht, Netherlands: 528-534.
39. Lal, R. 2011. Soil Degradation and Food Security in South Asia. In: Lal, R., M. Sivakumar, M.A. Faiz, A.N.M. Mustafizur Rahman and K.R. Islam (Eds) 2010. *Climate Change and Food Security in South Asia*. Springer, Holland: 137-152.
40. Lal, R. 2011. Soil health and climate change: an overview. In B.P. Singh et al. (Eds.) "Soil Health and Climate Change". *Soil Biology* 29, Springer Verlag, Berlin: 3-24.
41. Lyons, W.B., Carey A.E., Bigham, J., and Lal, R. 2011. Weathering and Carbon Sequestration. Lal, R. (Ed) "Encyclopedia of Soil Science" Taylor and Francis, Boca Raton, FL (DOI: 10-1081/E-Ess-120045112. <http://www.tandfonline.com/doi/abs/10.1081/E-Ess-120045112>).
42. Stavi, I., and R. Lal. 2011. Challenges and opportunities of soil organic carbon sequestration in croplands: A review. In: Lichtfouse, E., (Ed.) *Biodiversity, Biofuels, Agroforestry and Conservation Agriculture-Sustainable Agriculture Reviews*. Vol. 5. Springer Verlag, Holland: 149-174 (DOI:10.1007/978-90-481-9513-8\_5).

#### ***e) Invited Keynote Presentations***

43. Ibrahim, M. and R. Lal. 2011. Climate change and land use in the WANA region. Intl. Conf. on "Adaptation to Climate Change and Food Security in West Asia and North Africa", WMO/FAO/ICARDA/OSU/ State of Kuwait, 13-16 November 2011, Kuwait.
44. Lal R. 2011. Intensive agriculture and the soil carbon pool. In "Preparing Agriculture for Climate Change", Punjab Agric. Univ. Ludhiana, India, 6-8 Feb. 2011.
45. Lal, R. 2011. Adaption and mitigation of climate change by improving world's agriculture ecosystems. In "Agricultural Contributions to Climate Change Solutions: Mitigation and Adaptation at Global and Regional Scales". Tri Societies Annual Meeting, San Antonio TX, 10-19 October 2011.

46. Lal, R. 2011. Agricultural mitigation of climate change: potential and challenges. In "Mitigation of Greenhouse Gas Emissions from Managed Systems". Tri Societies Annual Meeting, San Antonio TX, 10-19 October 2011.
47. Lal, R. 2011. Carbon sequestration and nutrient cycling in urban soils. In "Urban Soils". Tri Societies Annual Meeting, San Antonio TX, 10-19 October 2011.
48. Lal, R. 2011. Challenges of measuring gaseous emissions from agroecosystems. Tri Societies Annual Meeting, San Antonio TX, 10-19 October 2011.
49. Lal, R. 2011. Climate change adaptation and mitigation through land use. Intl. Conference "For Life, For the Future: Biosphere Reserves and Climate Change", UNESCO's Man and the Biosphere (MAB), 27-28 June 2011, Dresden, Germany.
50. Lal, R. 2011. Climate change and sustainable agriculture. "Agronomy and Sustainable Agriculture" seminar series, Iowa State University, Ames, IA, 30 March 2011.
51. Lal, R. 2011. Climate change and the biosphere. 40<sup>th</sup> Anniversary of the UNESCO's "Man and the Biosphere" program. Dresden, Germany, 28-29 May 2011.
52. Lal, R. 2011. Global Soil Forum: Potential and Opportunities. Inst. Advanced Sust. Studies (IASS), 25-28 May 2011 in Potsdam, Germany.
53. Lal, R. 2011. Harnessing science knowledge for combating desertification, land degradation and drought. COP-10 Meeting, UNCCD, 17-18 October, Changwan, South Korea.
54. Lal, R. 2011. Land degradation and pedologic processes of world soils. Intl. Symposium on "Land Degradation and Pedology", Japanese Society of Soil Sci., IUSS Comm. 3.5, 8-10 August, Tsukuba, Japan.
55. Lal, R. 2011. Managing soils in the carbon civilization. D. Foster Hewitt Lecture, Lehigh University, Bethlehem, PA, 7-8 April, 2011.
56. Lal, R. 2011. Marginal Soils. In "Development on the Margins". Tropentag 2011, University of Bonn, 5-7 October 2011, Bonn Germany.
57. Lal, R. 2011. Mitigation strategies of the climate change effects. Dept. of Land, Air and Water Resources, U.C. Davis, CA, 27 April 2011.
58. Lal, R. 2011. Processes of soil carbon sequestration and ecosystem services. Soil Carbon Sequestration Summit. University of Sydney, Australia, 31<sup>st</sup> Jan.-3<sup>rd</sup> Feb. 2011
59. Lal, R. 2011. Producing more with less: sustainable management of soils. Symposium "Growing More with Less", U.S. Grains Council Meeting, 24-25 July 2011, San Francisco, CA.
60. Lal, R. 2011. Residue removal for biofuel and soil quality. University of Guam, 3-4 August 2011. Mangilao, Guam.
61. Lal, R. 2011. Restoring soil health and organic matter for conserving soil moisture in a watershed. Workshop "Blueprint for Sustainable Ecologically-Based Normal University, 31<sup>st</sup> July -4<sup>th</sup> August, 2011, Beijing, China.
62. Lal, R. 2011. Science dimension of achieving zero net land degradation. 17<sup>th</sup> Session of COP, 5-6 December 2011, Durban, South Africa.
63. Lal, R. 2011. Soil carbon sequestration and ecosystem services. In "Supporting Ecosystem Services with Conservation Agricultural Approaches, Tri Societies Annual Meeting, San Antonio, TX, 10-19 October 2011.
64. Lal, R. 2011. Soil quality in the WANA region for adapting to climate change and advancing food security. Intl. Conf. on "Adaptation to Climate Change and Food Security in West Asia and North Africa", WMO/FAO/ICARDA/OSU/ State of Kuwait, 13-16 November 2011, Kuwait.
65. Lal, R. 2011. Soils and global food security. Borlaug Lecture, 11<sup>th</sup> October 2011, Simpson College, IA.
66. Lal, R. 2011. Soils, food and climate. Recarbonization of the Biosphere. IASS, Potsdam, Germany, 20-22 March 2011.
67. Lal, R. 2011. The climate relevance of dryland ecosystems Workshop "Ecosystem Climate Relevance", UNEP-World Conservation Monitoring Center, 26-29 October, 2011, Isle of Wilm, Germany.
68. Lal, R. 2011. The Greening of Agriculture. The Borlaug Dialogue, World Food Prize Ceremony, 10-14 October 2011, Des Moines, IA.
69. Lal, R. 2011. What soil security will remediate: state of the global soil stocks, why soil carbon is the right indicator for soil security. Soil Security Meeting, The United State Study Center/ WWF, 15-16 Sept. 2011, Washington, D.C.
70. Lal, R. 2011. World soils and their protection. Wilton Park Conference "Global Land Use: Policies for the Future", 26- 28 Sept. 2011, Wilton Park, West Sussex, U.K.
71. Lal, R. 2011. Initiatives to include soils on global political agenda to address emerging issues. Bonn 2011 Nexus Conference, 16-18 November, Bonn, Germany.
72. Ortas, T. and R. Lal. 2011. Climate change and food security in the WANA region. Intl. Conf. on "Adaptation to Climate Change and Food Security in West Asia and North Africa", WMO/FAO/ICARDA/OSU/ State of Kuwait, 13-16 November 2011, Kuwait.

***f) Voluntary Contributions***

- 73. Lal, R. 2011. Soil carbon sequestration and ecosystem services. SSSA Annual Meeting, San Antonio, TX. Oct. 16-19.
- 74. Lal, R. 2011. Agricultural mitigation of climate change- potential and challenges. SSSA Annual Meeting, San Antonio, TX. Oct. 16-19.
- 75. Lal, R. 2011. Carbon sequestration and nutrient cycling in urban soils. SSSA Annual Meeting, San Antonio, TX. Oct. 16-19.
- 76. Ortas, I., Lal, R. 2011. Climate change and food security in West Asia. International Conference on Adaptation to Climate Change and Food Security in West Asia and North Africa, Kuwait City, Kuwait 14-17 November 2011.

***g) Miscellaneous***

**a) Books Written**

1. Lorenz, K. and R. Lal 2010. Carbon Sequestration in Forest Ecosystems. Springer Verlaag, Germany, 2010, 277 pp.

**b) Books Edited**

2. Lal, R. and B.A. Stewart (Eds.). 2010. Food Security and Soil Quality. CRC Press, Boca Raton FL, 412 pp.
3. Lal, R. and B.A. Stewart. (Eds.). 2010. Soil Quality and Biofuel Production. CRC/Taylor and Francis. Boca Raton, FL, 210 pp.

**c) Refereed Journal Articles**

4. Bellido, Lopez, R., R. Lal, T.K. Dannerberger and J.R. Street. 2010. Plant growth regulators and nitrogen fertilizer effects on soil organic carbon sequestration in creeping bent grass fairway turf. *Plant and Soil*. 332: 247-255.
5. Galdos, M.V., C.C. Cerri, R. Lal, M. Bernoux, B. Feigl and C.E. Cerri. 2010. Net greenhouse gas fluxes in Brazilian ethanol production systems. *Global Change Biol. and Bioenergy* 2: 37-44.
6. Gísladóttir, G., E. Erlendsson, and R. Lal, and J. Bigham. 2010. Carbon budget over the last millennium in the soils of the Reykjanes peninsula, southwest-Iceland. *Quaternary Research* 73.1: 20(13).
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#### ***d) Chapters in Multi-Authored Books***

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#### ***e) Invited Keynote Presentations***

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49. Lal, R. 2010. Cellulosic ethanol and soil quality. 2nd-5 November 2010. Trisoc. Meetings Long Beach, CA.
50. Lal, R. 2010. Characterization of soil organic matter. Opening Lecture, 12<sup>th</sup> Meeting of the Soil Sci. Soc.
51. Lal, R. 2010. Climate change and soils carbon management. Soil Water Conservation Society, St.
52. Lal, R. 2010. Dual response of conservation agriculture to climate change: reducing CO<sub>2</sub> emissions and improving the soil C sink. In “European Congress on Conservation Agriculture”, 2-8 October 2010, Madrid, Spain.
53. Lal, R. 2010. Facts and myths about biofuels. Agric Outlook Forum, USDA, Washington, D.C. 18 Feb. 2010.
54. Lal, R. 2010. Managing soils for advancing food security in Africa and South Asia. In “Partners in Agriculture and Food Security”. FAS, Tokyo, Japan, 7<sup>th</sup> April, 2010.
55. Lal, R. 2010. Mitigating climate change by combating desertification. Session 3:1, Pages 80-99. El-Beltagy, A. and Mohan C. Saxena (eds.). Meeting the Challenge of Sustainable Development in the Dry Lands under Changing Climate – Moving from Global to Local. Proceedings of the Tenth International Conference on Dryland Development (ICDD), 12-15 December 2010, Cairo, Egypt.
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60. Lal, R. 2010. Soils and climate. Tata Energy Res. Institute, New Delhi, India, 15 January 2010.
61. Lal, R. 2010. Soils, climate change and global food security. In Gary Peterson/Dwayne Westfall Lecture “Emerging Issues in Soil and Water”, Colorado State University, 22<sup>nd</sup> April 2010, Fort Collins, CO.
62. Lal, R. Mulch farming for agroecosystems. IAEA, Vienna, Australia, 5-8 July 2010.

#### ***f) Voluntary Contributions***

63. Beniston, J. 2010. Improving Soil Quality for Vegetable Production in Degraded Urban Soils. Carbon Dynamics in Urban Ecosystems Conference, Columbus, OH.
64. K. Lorenz. 2010. Long-Term Land-Use Effects on Soil Organic Carbon Sequestration. ASA, CSSA, and SSSA 2010 International Annual Meetings, Long Beach, CA.
65. Kadono, A. 2010. Modelling of Soil Organic Carbon Dynamics in Grassland and Agricultural Ecosystems in Ukraine. ASA, CSSA, and SSSA 2010 International Annual Meetings, Long Beach, CA.
66. Kumar. S. 2010. Apex Model Simulation of Runoff and Sediment Losses From Agroforestry Buffers for Watersheds Under Pasture Management. ASA, CSSA, and SSSA 2010 International Annual Meetings, Long Beach, CA.
67. Kumar. S. 2010. Predicting Spatial Distribution of Organic Carbon Pool In Soils of Ohio Using Four Statistical Approaches. ASA, CSSA, and SSSA 2010 International Annual Meetings, Long Beach, CA.
68. Lorenz, K. 2010. Carbon Storage in Urban Forest Soils in Columbus, Ohio. Carbon Dynamics in Urban Ecosystems Conference, Columbus, OH.
69. Selhorst, A. 2010. Carbon sequestration in golf course turfgrass systems. Carbon Dynamics in Urban Ecosystems Conference, Columbus, OH.
70. Shrestha, R. 2010. Greenhouse Gas Emissions In a No-till Chronosequence. ASA, CSSA, and SSSA 2010 International Annual Meetings, Long Beach, CA.
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72. Zirkle, G. and R. Lal. 2010. Lawn Carbon Sequestration. Carbon Dynamics in Urban Ecosystems Conference, Columbus, OH.

#### ***g) Miscellaneous***

73. Srivastava, R. and H. McIlvried. 2010. Myths of cellulosic ethanol
74. Winslow, M. P. Machado, J. Herrick, S. Twomlow, M. Pellant, P. Vlek and R. Lal. 2010. Monitoring and assessment of sustainable land management: concepts and strategies. White Paper, UNCCD, Bonn, Germany.

**a) Books Written****b) Books Edited**

1. Lal, R. and R.F. Follett (Eds) 2009. Soil carbon Sequestration and the Greenhouse Effect. Soil Sci. Soc. Am. Special Publ. 57, Second Edition, Madison WI, 410 pp.

**c) Refereed Journal Articles**

2. Blanco-Canqui H, R. Lal. 2009. Corn stover removal for expanded uses reduces soil fertility and structural stability. Soil Sci. Soc. Am. J. 73 (2): 418-426.
3. Blanco-Canqui H, R. Lal. 2009. Extent of soil water repellency under long-term no-till soils. Geoderma. 149 (1-2): 171-180.
4. Blanco-Canqui, H. and R. Lal. 2009. Indiscriminate corn stover removal reduces soil fertility, soil organic carbon and crop yields. CSA News. 54: 8-9.
5. Blanco-Canqui, H., and R. Lal. 2009. Crop residues removal impacts on soil productivity and environmental quality. Crit. Rev. Plant Sci. 28: 139-163.
6. Blanco-Canqui, H., and R. Lal. 2009. Extent of subcritical water repellency in long-term not-till soils. Geoderma. 149 (1-2): 171-180.
7. Chatterjee A., R. Lal and H. Blanco-Canqui. 2009. On Farm Assessment of Tillage Impact on Soil Carbon Sequestration and Associated Soil Quality Parameters. Soil & Tillage Res. 104 (2):270-277.
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9. Chatterjee, A., R. Lal, L. Wielopolski, M.Z., Martin and M.H. Ebinger. 2009. Evaluation of different soil carbon determination methods. Crit. Rev. Plant Sci. 28:164-178.
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11. Dubey, A. and R. Lal. 2009. Carbon footprint and sustainability of agricultural production systems in Punjab, India and Ohio, USA. J. Crop Imp. 23: 332-350.
12. Jacinthe, P.A., R. Lal, and L.B. Owens. 2009. Application of stable isotope analysis to quantify the retention of eroded carbon in grass filters at the North Appalachian experimental watersheds. Geoderma. 148: 405-412.
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14. Jagadamma, S., R. Lal, and B. Rimal. 2009. Effects of topsoil depth and soil amendment on corn yield and properties of two Alfisols in central Ohio. J. Soil Water Cons. 64 (1) 70-80.
15. Kang, D.S., Kuldeep Singh, Dhanwinder Singh, B.R. Garg, R. Lal and M. Velayutham. 2009. Viable alternatives to the rice-wheat cropping system in Punjab. J. Crop Imp. 23 (3) 300-318.
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17. Lal, R. 2009 Soil and Food Sufficiency: A Review. Agron. Sust. Dev. 19: 113-133.
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24. Lal, R. 2009. Soil carbon sequestration for climate change mitigation and food security. Indian Soc. Soil Sci., Platinum Jubilee Issue. (Jan 2009): 39-46.
25. Lal, R. 2009. Soil carbon sequestration to mitigate climate change and advance food security. Platinum Jubilee Issue (Souvenir), Indian Soc. Soil Sci. New Delhi, India: 33-46.
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27. Lal, R. 2009. Soil quality impacts of residue removal for bioethanol production. Soil Tillage & Research. 102: 233-241.
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38. Palaniappan, S.P., R. Balasubramanian, T. Ramesh, A. Chandrasekaran, K.G. Mani, M. Velayutham and R. Lal. 2009. Sustainable management of dryland Alfisols (red soils) in south India. *J. Crop Imp.* 23 (3) 275-299.
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40. Rimal, B. and R. Lal. 2009. Soil and carbon losses from five different land management areas under simulated rainfall. *Soil and Tillage Res.* 106(1): 62-70.
41. Sa, J. and R. Lal. 2009. Stratification ratio of soil organic matter pools as an indicator of carbon sequestration in a tillage chronosequence in a Brazilian Oxisol. *Soil Tillage Res.* 103 (1): 46-56.
42. Sa, J., C.C. Cerri, R. Lal, W. A. Dick, M. Piccolo, and B.E. Feigl. 2009. Soil organic carbon and fertility interactions affected by a tillage chronosequence in a Brazilian oxisol. *Soil Tillage & Res.* 104 (1): 56-64.
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#### ***d) Chapters in Multi-Authored Books***

47. Blanco-Canqui, H. and R. Lal 2009. Crop residue management and soil carbon dynamics. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: 291-310.
48. Jacinthe, P.A., C.D. Barton, S. Maharaj, and R. Lal. 2009. An evaluation of methodologies for assessing geogenic carbon in minesoils of the eastern US. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: 347-364.
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50. Lal, R. 2009. Soil and water management options for adaptation to climate change. In A. Eggleham and R.W.F. Hardy (Eds.) "Adapting Agriculture to Climate Change". National Agricultural Biotechnology Council (NABC) Report #21, Ithaca, New York: 117-135.
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53. Lal, R. 2009. Tragedy of the global commons: soil, water and air. In Eric Lichtfouse (Ed) "Climate Change, Intercropping, Pest Control and Beneficial Micro-Organisms", Springer Verlag, Dordrecht, Holland: 9-11.
54. Lal, R. 2009. Use of crop residues in the production of biofuel. In K.W. Waldron (Ed) "Handbook of waste management and Co-Product Recovery in Food Processing". Vol. 2, Woodhead Publishing Ltd, Oxford, U.K.: 455-478.
55. Lal, R., and R. F. Follett. 2009. Priorities in soil science research and extension in response to climate change. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: 401-410.

56. Lal, R., and R. F. Follett. 2009. Soils and the climate change. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: xxi-xxvii.
57. Lorenz, K., R. Lal, C.M. Preston, K.G.J. Nierop. 2009. Soil organic carbon sequestration by biochemically recalcitrant biomacromolecules. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: 207-222.
58. Lorenz, K., R. Lal. 2009. Carbon dynamics in urban soils. In 2<sup>nd</sup>. Ed. R. Lal and R.F. Follett (Eds.). "Soil Carbon Sequestration and Greenhouse Effect". SSSA Spec. Publ. 57. Madison, WI: 393-400.
59. Palaniappan, S.P., A. Chandrasekaran, D.S. Kang, K. Singh, R.P. Rajput, D.L. Kauraw, M. Velayutham and R. Lal. 2009. Sustainable management of natural resources for food security and environment quality: case studies from India. In Eric Lichtfouse (Ed) "Climate Change, Intercropping, Pest Control and Beneficial Micro-Organisms", Springer Verlaag, Dordrecht, Holland: 339-372.
60. Post, W., J.E. Amonette, R. Bindsey, C.T. Garten, Jr., R.C. Izaurralde, P.M. Jardine, J. Jastrow, R. Lal, G. Marland, B.A. McCarl, A.M. Thomson, T.O. West, S.D. Wullschlegler and F.B. Metting. 2009. Terrestrial biological sequestration: science for enhancement and implementation. In B. McPherson and E.T. Sundquist (Eds) "Carbon Sequestration and Its Role in the Global Carbon Cycle:.. AGU Books: Geophysical Monograph Servier Volume 183, Ch 5, Section 2.
61. Shrestha, R.K., Ussiri, D.A.N. and Lal, R. 2009. Terrestrial carbon sequestration potential in reclaimed mine ecosystem to mitigate the greenhouse effect, pp 321-346. In R. Lal and F. Follet (Eds) Soil Carbon Sequestration and the Greenhouse Effect. Soil Science Society of America, Madison WI.

#### ***e) Invited Keynote Presentations***

62. Lal, R. 2009. Terrestrial carbon storage. 28-29 January. UNEP, Scientific and Technological Advisory Panel (STAP), The Heinz Center, Washington D.C., USA.
63. Lal, R. 2009. Adapting to climate change through soil management. 4-9 July. CIMMYT, Astana, Kazakhstan.
64. Lal, R. 2009. Carbon sequestration in world soils. 3-6 June. IFPRI/UNFCC, Bonn, Germany.
65. Lal, R. 2009. Climate change and its implications to agriculture in Central Asia. 16 January. International Green Week, (Sponsored by FAO Regional Office, Budapest, Hungary). Berlin, Germany.
66. Lal, R. 2009. Creating positive ecosystem C budgets. Invited paper, 1-5 November 2009, Meeting of ASA/CSSA/SSSA, Pittsburg, USA.
67. Lal, R. 2009. Direct seeding to meet the 2050 challenge. 22 January. Northwest Direct Seeding Cropping System Conference, Three Rivers Convention Center, Kennewick, WA, USA.
68. Lal, R. 2009. Global soil resource base: degradation and lost to other uses. 6-8 April. OECD Cooperative Research Program (CPR). Prague, Czech Republic.
69. Lal, R. 2009. Laws of Sustainable Soil Management to Meet the Challenges of 21<sup>st</sup> Century. 24 April. Lexington University of Kentucky, USA.
70. Lal, R. 2009. Managing soil for advancing food security and adapting to climate change. Japan Science Council, 15-18 September, Tokyo, Japan.
71. Lal, R. 2009. Managing soil resilience for a warming climate and decreasing resources. Brainstorming Workshop, M.S. Swaminathan Award Ceremony, Delhi, India. 12 August 2009.
72. Lal, R. 2009. Managing soils to enhance eco-friendly in agro-ecosystems. 16-17 June. Science Forum 2009, CGIAR Wageningen, Holland.
73. Lal, R. 2009. Managing water for agriculture and other competing uses. In International Conference on Science and Technology for Sustainability, 16-17 November 2009, Tokyo, Japan.
74. Lal, R. 2009. Opportunities and challenges in sequestering atmospheric CO<sub>2</sub> through restoring of desertified lands. 4 September. COMLAND Conference, 6-9 September 2009, Magdeburg, Germany.
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**a) Books Written****b) Books Edited**

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2. Lal, R., M. Suleimenov, P. Doraiswamy, P. Wall and D. Hansen (Eds). 2007. Climate Change and Terrestrial C Sequestration in Central Asia. Taylor and Francis, Amsterdam, 493 pp.

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#### ***d) Chapters in Multi-Authored Books***

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2. Lal, R. (Ed). 2006. Encyclopedia of Soil Science, Second Edition, Vol I, Vol II. Taylor & Francis, Boca Raton, FL.
3. Bhatti, J.S., R. Lal, M.A. Price and M.J. Apps (Eds). 2006. Climate Change and Managed Ecosystems. CRC, Boca Raton, FL 464 pp.
4. Roose, E.J., R. Lal, C. Feller, B. Barthes and B.A. Stewart (Eds). 2006. Soil Erosion and Carbon Dynamics. CRC Press, Boca Raton, FL, 376 pp.

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***f) Voluntary Contributions***

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**a) Books Written****b) Books Edited**

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**c) Refereed Journal Articles**

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43. Lal, R. 2005. Natural resources management challenges of the 21st century. The Centenary Convention of the Indian Agricultural Research Institute, 16-19 March 2005, New Delhi, India.
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46. Lal, R. 2005. Soil carbon management for enhancing agronomic productivity and improving the environment. National Seminar on "Resource Management Options to Reverse the Declining Trends in Crop Productivity", 4 - 5 July 2005, TANU, Coimbatore, India.
47. Lal, R. 2005. Soil conservation for global food security and mitigating climate change. International Workshop "Strategies, Science, and Laws of the Conservation of World's Soil Resources", 14 - 18 September, 2005, Reykjavik, Iceland.
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**b) Books Edited**

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46. Lal, R. 2004. Assessing carbon storage and flux in agricultural soils. AGU Fall Meeting, 13-17 December 2004, San Francisco.
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50. Lal, R. 2004. The Potential of carbon sequestration in soils of South Asia. 13<sup>th</sup> ISCO Conference, 4-8 Jul 2004. Brisbane, Australia.
51. Lal, R. 2004. Willie Woltz Lecture "Soil Carbon, Climate Change, and Global Food Security, 29-30 March 2004, Dept. of Soil Science, North Carolina State Univ., Raleigh, NC.
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**a) Books Written****b) Books Edited**

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19. Wairiu, M. and R. Lal. 2003. Soil organic carbon dynamics in relation to cultivation and topsoil removal on sloping lands of Kolomangara, Solomon Islands. *Soil & Tillage Res.* 70: 19-27.

**d) Chapters in Multi-Authored Books**

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***e) Invited Keynote Papers***

29. Lal, R. C. den Biggelaar and K.D. Wiebe. 2003. Measuring on-site and of-site effects of productivity and environment quality. In "OECD Expert Meeting on Soil Erosion and Soil Biodiversity Indicators." 25-28 March, Rome, Italy.
30. Lal, R. 2003. Agriculture, land use and sustainability. Workshop on Information Technology and Sustainable Development." Carnegie Mellon, World Bank, NSF, 26-27 June 2003, World Bank, Washington, D.C.
31. Lal, R. 2003. Forest soils and carbon sequestration. 10<sup>th</sup> North American Forest Soils Conference. 20-24 July 2003, Su St. Marie, Canada.
32. Lal, R. 2003. Water harvesting and soil carbon sequestration. XI International Conference on Rainwater Catchment Systems. 25-29 August 2003, Mexico City, Mexico.
33. Lal, R. 2003. Global Climate Change and Soil Carbon Dynamics. EMBRAPA (Brazilia), CENA (Univ. of Sao Paulo), 18-22 August, Brazil.
34. Lal, R. 2003. Linking global food security with climate change. 1<sup>st</sup> Larson-Allmaras Lecture, Dept. of Soils, Univ. of Minnesota, St. Paul, 4 April 2003.

***f) Voluntary Contributions***

***g) Miscellaneous***

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1. Kimble, J., R. Lal and R.F. Follett (Eds) 2002. Agricultural Policies and Practices for Carbon Sequestration in Soils. CRC Press, Boca Raton, FL, 512 pp.
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**c) Refereed Journal Articles**

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27. Lal, R. 2002. Soil conservation and restoration to sequester carbon and mitigate the greenhouse effect. In: J.L. Rubio, R.P.C. Morgan, S. Asins and V. Andrean (Eds) "Man and Soil at the Third Millennium," Third Intl. Congress of the European Soc. for Soil Conservation. 28 March-1 April 2000, Valencia, Spain, GEOFORMA, Logroño, Spain: 37-51.
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38. Lal, R. 2002. Soils and Climate Change. OARDC Annual Conference, March 2002, OARDC, Wooster, OH.
39. Lal, R. 2002. Off-setting industrial CO<sub>2</sub> emissions by soil carbon sequestration. USDA-NRCS/AR Seminar, 12 September 2002, Jefferson Auditorium, Washington, D.C.
40. Lal, R. 2002. Conservation tillage in tropical agroecosystems. ASA meetings, 10-14 November 2002, Indianapolis, IN.
41. Lal, R. 2002. Soil erosion and the greenhouse effect. Southern Global Change Program workshop, 19-21 November 2002, Raleigh, NC.
42. Lal, R., R.F. Follett and J.M. Kimble. 2002. Mitigating global warming through soil carbon sequestration. 2002 Annual Meeting of ASA, 10-14 November 2002, Indianapolis, IN.

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44. Puget, P., R. Lal, C. Izauralde and W.M. Post. 2002. Stocks and dynamics of soil organic carbon as affected by land management. 2002 Annual ASA Meeting, 10-14 November 2002, Indianapolis, IN.
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46. Shukla, M.K., R. Lal, P. Unkefer and L.B. Owens. 2002. Land use and management impact on infiltration rate of soils. 2002 Annual ASA Meeting, 10-14 November 2002, Indianapolis, IN.

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3. Lal, R. (Ed) 2001. Soil C Sequestration and the Greenhouse Effect. SSSA Special Pub. #57, Madison, WI, 236 pp.
4. Lal, R., J.M. Kimble, R.F. Follett and B.A. Stewart (Eds) 2001. Assessment Methods for Soil Carbon. CRC/Lewis Press, Boca Raton, FL, 676 pp.

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44. Lal, R. 2001. Soil degradation: a serious problem or a storm in the teacup. USDA-ERS, 16 April 2001, Washington, D.C.
45. Lal, R. 2001. Soils: Challenges and Research Needs. NRC Workshop on "Opportunities in Agriculture: A vision for USDA's Food and Agricultural Research in the 21st Century. 22-23 May 2001, A National Research Council Public Workshop, Washington, D.C.

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3. Lal, R., J.M. Kimble and B.A. Stewart (Eds) 2000. Global Climate Change and Cold Ecoregions. CRC/Lewis Press, Boca Raton, FL, 265 pp.
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6. Bajracharya, R., R. Lal and J. Kimble. 2000. Erosion effects on carbon dioxide concentration and carbon flux from an Ohio Alfisol. Soil Sci. Soc. Am. J. 64: 694-700.
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9. Lal, R. 2000. A modest proposal for the year 2000: We can control greenhouse gases and feed the world with proper soil management. J. Soil Water Cons. 55: 429-433.
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11. Lal, R. 2000. Mulching effects on soil physical quality of an Alfisol in western Nigeria. Land Degrad. & Develop. 11: 383-392.
12. Lal, R. 2000. Physical management of soils of the tropics: Priorities for the 21<sup>st</sup> Century. Soil Sci. 165: 191-207.
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20. Vaje, P.I., B.R. Singh and R. Lal. 2000. Leaching and plant uptake of nitrogen from a volcanic ash soil in Kilimanjaro region, Tanzania. J. Sustainable Agric. 16: 95-112.

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***f) Voluntary Contributions***

***g) Miscellaneous***

Movies and Video Film for Classroom Teaching Produced by the United Nations University, Tokyo, Japan (1987-88)

25. Soil erosion (30 minutes)
26. Earthworms (20 minutes)
27. Termites (20 minutes)
28. Tropical deforestation (30 minutes)

**a) Books Written****b) Books Edited**

1. Lal, R., P. A. Sanchez and R. W. Cummings, Jr. (Eds) 1986. Land Clearing and Development in the Tropics. Balkema Publishers Rotterdam, 450 pp.

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13. Lal, R. 1986. Effects of 6 years of continuous cultivation by no-till or puddling systems on soil properties and rice yield of a loamy soil. Soil & Till. Res. 8: 181-200.
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***f) Voluntary Contributions***

***g) Miscellaneous***

**a) Books Written**

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17. Lal, R. 1979. Physical properties of tropical soils. In: "Soil Physical Properties and Crop Production in the Tropics," R. Lal and D. J. Greenland (Eds), J. Wiley & Sons, NY: 7-44.
18. Lal, R. 1979. Role of soil physical properties in maintaining productivity of tropical soils. In: "Soil Physical Properties and Crop Production in the Tropics," R. Lal and D.J. Greenland (Eds), J. Wiley & Sons, NY: 3-5.
19. Maurya, P. R. and R. Lal. 1979. Effects of gravel concentration, inter-gravel density and soil moisture on radical elongation. In: "Soil Physical Properties and Crop Production in the Tropics" R. Lal and D. J. Greenland (Eds), J. Wiley & Sons, NY: 339-347.
20. Okigbo, B. N. and R. Lal. 1979. Soil fertility maintenance and conservation for improved agro-forestry systems in the lowland humid tropics. In: "Soils Research in Agroforestry," H.O. Mongi and P. A. Huxley (Eds), ICRAF, Nairobi, Kenya: 41-79.

***e) Invited Keynote Papers***

21. Lal, R. 1979. Erosion as a constraint to food production in the tropics. In: "Program priorities for alleviating soil-related constraints to food production in the tropics," 4-8 June 1979, IRRI, Los Banos, Philippines: 405-423.
22. Lal, R. 1979. Conservation-effective farming systems in the humid tropics. ASA symposium: "Soil Erosion and Conservation in the Tropics." 5-10 August 1979, Fort Collins, CO: 57-76.

***f) Contributory Conference Papers in National and International Symposia***

23. Armon, M. and R. Lal. 1979. Soil conditions and tillage systems in the tropics. Proc. 8th ISTRO Conference, Hohenheim, Germany: 6-15.

***g) Miscellaneous***

24. Lal, R. 1979. Plant Root Systems by R. Scott Russel. McGraw Hill. Field Crops Res. 2: 177-181.
25. Lal, R. 1979. Tropical crops by H. Brücher. Field Crops Res. 2: 77-82.
26. Lal, R., J. C. Moomaw, and A. Fagbamiye. 1979. Soil-water relation of rice. IITA Special Publication. 335pp.

**a) Books Written****b) Books Edited****c) Refereed Journal Articles**

1. Ajuwon, S., O. Olunuga and R. Lal. 1978. Suitability of no-tillage technique in the forest and savannah regions of western Nigeria. *Nigerian J. Sci.* 12: 247-266.
2. De Vleeschauwer, D., R. Lal and M. De Boodt. 1978. Comparison of soil detachability indices for some Nigerian soils. *Pedology* 28: 5-20.
3. De Vleeschauwer, D., R. Lal and M. De Boodt. 1978. The comparative effects of surface applications of organic mulch versus chemical soil conditioners on physical and chemical properties of the soil and on plant growth. *Catena* 5: 337-349.
4. Lal, R. 1978. Influence of within and between row mulching on soil temperature, soil moisture, root development and yield of maize in a tropical soil. *Field Crop Research* 1:127-141.
5. Lal, R. 1978. Some physical characteristics of Nigerian soil with particular reference to their moisture retention characteristics. *Geoderma* 21: 209-223.
6. Lal, R., G. F. Wilson and B. N. Okigbo. 1978. No-tillage farming after various grasses and leguminous cover crops in tropical Alfisol. I. Crop performance. *Field Crop Research* 1: 71-84.
7. Lal, R., P. R. Maurya and S. Osei-Yeboah. 1978. Effects of no-tillage and ploughing efficiency of water use in maize and cowpea. *Exp. Agric.* 14(2): 113-120.

**d) Chapters in Multi-Authored Books**

8. Lal, R. 1978. Influence of residue mulches and tillage methods on soil structure and infiltration rate. In: "Modification of Soil Structure," W.W. Emerson, R.D. Bond, and A.R. Dexter (Eds), A. Wiley Interscience Publication: 393-402.
9. Lal, R. and D.J. Greenland. 1978. Effect of conditioners and moisture content on temperature profile and infiltration rate of a Vertisol. In: "Modification of Soil Structure," W.W. Emerson, R. D. Bond, and A.R. Dexter (Eds), A. Wiley Interscience Publication: 191-198.
10. Lal, R. and J.C. Moomaw. 1978. Techniques for screening rice varieties for drought tolerance. In: "Rice in Africa," Academic Press: 285-292.
11. Wien, C., R. Lal and E. L. Pulver. 1978. Effects of transient flooding on growth and yield of some tropical crops. In: "Soil Physical Properties and Crop Production in the Tropics," R. Lal and D. J. Greenland (Eds), J. Wiley & Sons: 235-245.

**e) Invited Keynote Papers**

12. Lal, R. 1978. Soil conservation and management in the tropics: Research Priorities. *Proc. Second National Symposium on Soil and Water Conservation*, 24-28 April, 1978, Posso Fundo, Brazil: 5-18.
13. Okigbo, B. N. and R. Lal. 1978. Residue mulches and agri-silviculture in tropical African Agriculture. In: "Basic Techniques in Ecological Agriculture," 2-5 October 1978, Montreal, Canada.

**f) Contributory Conference Papers in National and International Symposia**

14. Lal, R. 1978. The problem of soil and water conservation and management in humid and subhumid Africa and its control. *AAASA Symp*, 9-15 April 1978, Univ. Ibadan, Nigeria.

**g) Miscellaneous**

**a) Books Written****b) Books Edited**

1. Greenland, D. J. and R. Lal (Eds) 1977. Soil Conservation and Management in the Tropics. J. Wiley & Sons, London, pp. 283.

**c) Refereed Journal Articles**

2. Juo, A.S.R. and R. Lal. 1977. The effect of fallow and continuous cultivation on the chemical and physical properties of an Alfisol in the Tropics. *Plant and Soil* 47(3): 567-584.

**d) Chapters in Multi-Authored Books**

3. Greenland, D. J. and R. Lal. 1977. Soil erosion in the humid tropics: The need for action and the need for research. In: "Soil Conservation and Management in the Humid Tropics," D. J. Greenland and R. Lal (Eds), J. Wiley & Sons: 261-265.
4. Lal, R. 1977. A brief review of erosion research in the humid tropics of South East Asia. In: "Soil Conservation and management in the Humid tropics," D. J. Greenland and R. Lal (Eds), J. Wiley & Sons: 203-212.
5. Lal, R. 1977. Analysis of factors affecting rainfall erosivity and soil erodibility. In: "Soil Conservation and Management in the Humid Tropics," D. J. Greenland and R. Lal (Eds), J. Wiley & Sons: 49-56.
6. Lal, R. 1977. Review of Soil Erosion Research in Latin America. In: "Soil conservation and Management in the Humid Tropics," D.J. Greenland and R. Lal (Eds), J. Wiley & Sons: 231-240.
7. Lal, R. 1977. Soil management systems and erosion control. In: "Soil Conservation and Management in the Humid tropics," D. J. Greenland and R. Lal (Eds), J. Wiley & Sons: 93-98.
8. Lal, R. 1977. The soil and water conservation problem in Africa: Ecological differences and management problems. In: "Soil Conservation and Management in the Humid Tropics," D. J. Greenland and R. Lal (Eds), J. Wiley & Sons: 143-150.

**e) Invited Keynote Papers**

9. Lal, R. 1977. Erosivity of Tropical Countries. Expert Consultation on Methodology for Soil Degradation. FAO 18-20 January, Rome, Italy. *FAO Soils Bulletin* 34:7.
10. Lal, R. 1977. Research considerations for soil and water conservation and management. *Food and Agric. Malaysia* 2000. 87-100.
11. Lal, R. 1977. Crop residue management in relation to tillage techniques for soil and water conservation. FAO/UNDP Expert consultation, Buea, Cameroon, 5-15 December 1977.

**f) Contributory Conference Papers in National and International Symposia**

12. Lal, R. 1977. Climatic aspects of soil and water conservation in the humid tropics. W.M.O./F.A.O. Technical Conference on the Application of Meteorology to Agriculture in Africa. 12-16 April 1977. IITA, Ibadan.

**g) Miscellaneous**

**a) Books Written**

1. Lal, R. 1976. Soil erosion problems on an alfisol in western Nigeria and their control. IITA Monograph 1, Ibadan, Nigeria.

**b) Books Edited****c) Refereed journal Articles**

2. Babalola, O. and R. Lal. 1976. Sub-surface gravel horizon and root growth I. Gravel concentration and bulk density effect. *Plant and Soil* 46:337-346
3. Babalola, O. and R. Lal. 1976. Sub-surface gravel horizon and root growth II. Effect of gravel size, inter-gravel texture and natural gravel horizon. *Plant and Soil* 46:347-357.
4. Lal, R. 1976. No-tillage effects on soil properties under different crops in western Nigeria. *Soil Sci. Soc. Amer. Proc.* 40:762-768.
5. Lal, R. 1976. Soil erosion of Alfisols in western Nigeria. III. Effect of rainfall characteristics. *Geoderma* 16: 389-401.
6. Lal, R. 1976. Soil erosion on Alfisols in western Nigeria. I. Effects of slope, crop rotation and residue management. *Geoderma* 16: 363-375.
7. Lal, R. 1976. Soil erosion on Alfisols in western Nigeria. II. Effect of mulch rate. *Geoderma* 16: 377-387.
8. Lal, R. 1976. Soil erosion on Alfisols in western Nigeria. IV. Nutrient losses in runoff and eroded sediments. *Geoderma* 16: 403-417.
9. Lal, R. 1976. Soil erosion on Alfisols in western Nigeria. V. Changes in soil physical characteristics and crop response. *Geoderma* 16: 419-431.

**d) Chapters in Multi-Authored Books**

10. Lal, R. 1976. Mulch. In: "Encyclopedia of Earth Science Series," R.K. Fairbridge and C.W. Finkl, Jr. (Eds), Dowden, Hutchinson, and Ross Inc., Stroudsburg, PA, USA: 314-319.
11. Lal, R. 1976. No-tillage implications to tropical soils. In: "Encyclopedia of Earth Science Series," R.K. Fairbridge and C. W. Finkl, Jr. (Eds), Dowden, Hutchinson, and Ross Inc., Stroudsburg, PA, USA: 616-620.

**e) Invited Keynote Papers**

12. Lal, R. 1976. Soil and water conservation and management in tropical Africa. United Nations Water Conference. African Regional Meeting. 20-24 Sept. 1976. Addis Ababa, Ethiopia.
13. Okigbo, B. N. and R. Lal. 1976. Role of Cover Crops in Soil and Water Conservation. Expert Consultation on Soil Conservation and Management in Developing Countries. FAO Rome, 22-26 November, Rome, Italy. FAO Soils Bulletin 33:97-108.

**f) Contributory Conference Papers in National and International Symposia**

14. Aina, P.O., R. Lal and G. S. Taylor. 1976. Soil and crop management in relation to soil erosion in the rainforest region of Western Nigeria. *Soil Erosion Prediction and Control: SCS Special Publication* 21: 75-84.
15. Lal, R. 1976. An approach to tillage research in the humid tropics. 7th Int. Tillage Res. Conference 14-18 June 1976, Uppsala, Sweden.

**1975****Publications: 7****a) Books Written**

1. Moormann, F. R., R. Lal and A.S.R. Juo. 1975. Soils of IITA. IITA Tech Bull. 3, 48pp.
2. Lal, R. 1975. Role of mulching techniques in tropical soil and water management. IITA Tech. Bull. 1, 38pp.

**b) Books Edited****c) Refereed Journal Articles**

3. Bruce-Okine, E. and R. Lal. 1975. Soil erodibility as determined by raindrop technique. Soil Sci. 119:149-157.

**d) Invited Keynote Papers**

4. Lal, R. 1975. Some aspects of soil and water conservation in the tropics with particular reference to Latin America. Proc. V. Latin American Congress of Soil Science, 12-16 August 1975. Medellin, Columbia.

**e) Contributory Conference Papers in National and International Symposia**

5. Harrison-Murray, R. and R. Lal. 1975. Effect of root temperature on crop growth. Proc. Physiol. Program Formulation Workshop. February 1975. IITA.
6. Lal, R. 1975. Soil management to increase water and fertilizer efficiency IAEA/FAO International Expert Consultation on "Efficiency of water and fertilizer use in the semi-arid regions of Africa. 10-14 November 1975. Bambey, Senegal." IAEA 192: 101-122.
7. Mensah-Bonsu and R. Lal. 1975. Field and lab determination of hydraulic conductivity of an Alfisol in Nigeria. Proc. V. Latin American Congress of Soil Science. 12-16 August 1975. Medellin, Columbia.

**g) Miscellaneous****1974****Publications: 10****a) Books Written****b) Books Edited****c) Refereed Journal Articles**

1. Lal, R. 1974. Effect of soil texture and density on the neutron and density probe calibration for some tropical soils. Soil Science 117(4): 183-190.
2. Lal, R. 1974. Effects of constant and fluctuating soil temperature on growth, development and nutrient uptake by maize. Plant and Soil 40: 589-606.
3. Lal, R. 1974. No-tillage effects on soil conditions and crop growth in western Nigeria. Plant and Soil 40: 321-331.
4. Lal, R. 1974. Soil temperature, soil moisture and maize yield from mulched and unmulched tropical soil. Plant and Soil 40:129-143.
5. Rockwood, W. G. and R. Lal. 1974. Mulch tillage: a technique for soil and water conservation in the tropics. Span 17(2): 77-79.

**d) Chapters in Multi-Authored Books**

6. Lal, R., B.T. Kang, A.S.R. Juo, F.R. Moormann and J.C. Moomaw. 1974. Soil management problems and possible solutions in western Nigeria. In: "Soil Management in Tropical America" Bornemisza and Alvarado (Eds), North Carolina State University, Raleigh. 372-408.

**e) Invited Keynote Papers**



7. Lal, R. 1974. Soil temperature relations in tropical Africa and their effects on crop yield. FAO/UNDP. International Expert Consultation on the use of improved technology for food production in rainfed areas of tropical Asia. Food and Agric. Organization of the United Nations (FAO), 1974.
8. Lal, R. 1974. Soil and water conservation through no-tillage systems. FAO-UNDP International Expert Consultation on the "Use of Improved Technology for Rainfed Areas of Tropical Asia. FAO-UNDP.

***f) Contributory Conference Papers in National and International Symposia***

9. Babalola, O. and R. Lal. 1974. A neutron moisture meter and beta-gauging technique to investigate plant-water relations for maize. IAEA/SM-176/14:335-190.
10. Lal, R. 1974. Soil erosion and shifting cultivation. FAO Soils Bull. 24:48-71.

***g) Miscellaneous***

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**1973**

**Publications: 1**

**Total Publications in 1973: 1**

***Refereed Journal Articles***

1. Lal, R. 1973. Effects of methods of seedbed preparation and time of planting of maize in western Nigeria. Exp. Agric. 9: 303-313.

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**1972**

**Publications: 1**

***Refereed Journal Articles***

1. Collis-George, N., and R. Lal. 1972. The temperature profiles of soil columns during infiltration. Aust. J. Soil Res. 11: 93-105.
- 2.

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**1971**

**Publications: 2**

***Refereed Journal Articles***

1. Chatterjee, R. K. and R. Lal. 1971. A study of certain physical properties of soils from Northern plains of India. Indian J. Agron. 16(3): 334-340.
2. Collis-George, N., and R. Lal. 1971. Infiltration and structural changes as influenced by initial moisture content. Aust. J. Soil Res. 9:107-116.

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**1970**

**Publications: 4**

***Refereed Journal Articles***

1. Bridge, B. J., N. Collis-George and R. Lal. 1970. The effect of wall lubricants and column confinement on the infiltration behavior of a swelling soil in the laboratory. Aust. J. Soil Res. 8: 259-272.
2. Collis-George, N. and R. Lal. 1970. Infiltration into columns of swelling soil as studied by high speed photography. Aust. J. Soil Res. 8:195-207.
3. Lal, R. and G. S. Taylor. 1970. Drainage and nutrient effects in a field lysimeter study. II. Mineral uptake by corn. Soil Sci. Soc. Amer. Proc. 34: 245-248.
4. Lal, R., B. J. Bridge, and N. Collis-George. 1970. The effect of column diameter on the infiltration behavior of a swelling soil. Aust. J. Soil Res. 8: 185-193.

**1969****Publications: 1**

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***Refereed Journal Articles***

1. Lal, R. and G. S. Taylor. 1969. Drainage and nutrient effects in a field lysimeter study. I. Corn yield and soil conditions. Soil Sci. Soc. Amer. Proc. 33: 937-941.

**1967****Publications: 1**

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***Refereed Journal Articles***

1. Chatterjee, R. K. and R. Lal. 1967. Growth and yield of maize as influenced by soil physical properties. Ind. J. of Agric. Sci. 38: 816-819.

# RESEARCH THESES OF GRADUATE STUDENTS SUPERVISED

Name	Thesis Title	University	Degree	Year
<b><u>A. Student Research Supervised at IITA</u></b>				
1. O. Babalola	Effects of subsoil gravel horizon on growth, root development and water relations of maize.	University of Ibadan	Ph.D	1974
2. P.N. Vine	Maize root growth in sand and gravelly sand.	University of Ibadan	M.Sc	1974
3. P.O. Aina	The effects of rainfall, soil and management factors on soil erosion of Nigerian tropical soils.	The Ohio State University	Ph.D	1977
4. A.O. Anastase	Characterization of rainfall parameters for defining erosivity of tropical rain stands.	National University of Benin	M.Sc	1977
5. R.S. Harrison-Murray	Crop responses to mulching in tropical environment with special reference to high soil temperature.	University of Reading	Ph.D	1978
6. M. Poto	Soil and climate parameters affecting potential erosion hazard in Zaire.	University of Ibadan	M.Phil	1979
7. P.A.F. Foncho	Response of tropical maize cultivars to temperature and moisture stress.	University of Ibadan	Ph.D	1979
8. M. Bonsu	Hydrological properties of a toposequence on an Alfisol in Nigeria.	University of Ghana	M.Sc	1979
9. L.T. Ogunremi	Effects of water table depths and calcium peroxide on the performance of cowpea, soybean and maize.	University of Ibadan	M.Sc	1980
10. M.N. Armon	Effects of tillage systems on soil and water conservation on soil physical properties.	University of Ibadan	M.Sc	1980
11. M. Banda	Plant-water relations as a criterion for screening for drought resistance in rice.	University of Zaire	Ph.D	1980
12. S.O. Ajunwoan	Rainfall erosivity and soil erodibility studies in western Nigeria.	University of Ibadan	Ph.D	1981
13. E.L. Ngatunga	Soil erosion studies at Mlingano on the eastern Usambara, Tanzania.	University of Dar es Salaam	M.Sc	1981
14. A.I. Khatibu	Influence of tillage and mulching on the growth of yield of maize, cowpea and soybean.	University of Dar es Salaam	M.Sc	1981
15. E.C. Amezquita	A study of the water regime of a soil during approach to field capacity and wilting point.	University of Reading	Ph.D	1981
16. J.S.C. Mbagwu	Studies on soil loss-productivity relationships of Alfisols, Ultisols in southern Nigeria.	Cornell University	Ph.D	1981
17. L.T. Ogunremi	Tillage systems for rice production in different ecologies.	University of Ibadan	Ph.D	1983
18. M.N. Armon	Bio-physical and socio-economic constraints for degradation of tropical soils.	University of Ibadan	Ph.D	1983

## RESEARCH THESES OF GRADUATE STUDENTS SUPERVISED (continued)

Name	Thesis Topic	University	Degree	Year
19. H. Franzen	Tillage induced soil compaction.	University of Gottingen	Ph.D	1986
20. U. Sabel-Khoschella	Soil erosion and cropping systems.	University of Munich	Ph.D	1986
21. M.E. Ogula	Soil-tillage interaction for upland rice.	University of Zaire	Ph.D	--
22. B. Kayombo	Crop response to soil compaction.	University of Copenhagen	Ph.D	1986
23. P. Mtakwa	Comparative evaluation of soil erosion by different methods.	Sokoine Agric. Univ. Morogoro	M.Sc	1986
24. C. Mayona	Seeding establishment with no-till.	Sokoine Agric. Univ. Morogoro	M.Sc	1986
25. H. Mahoo	Baseflow and interflow with different land use systems.	Sokoine Agric. Univ. Morogoro	Ph.D	1987
26. M. Bernard	Impact of farming systems on soil erosion in the tropics.	University of Munich	Ph.D	1988
27. G. Ley	Hard setting soils of the tropics.	University of Aberdeen	Ph.D	1988
28. F.K. Salako	Soil erodibility and rainfall erosivity.	University of Nigeria	M.Sc	1986
29. E.I. Ahaneku	Vegetal cover and soil splash.	University of Ibadan	M.Sc	1985
30. M. Miller	Crop response to soil erosion.	University of California, Davis	Ph.D	1986
31. S. Huke	Vegetal cover and soil splash.	University of California, Davis	M.Sc	1984
32. A. Vaneland	Erodibility of some Nigerian soils.	University of Louven	Ph.D	1986
<b><u>B. The Ohio State University</u></b>				
33. H. Tanaka	Effects of vehicular traffic on soil physical and crop growth.	Japan	M.Sc	1990
34. R. Bajracharya	Intra-rill soil erodibility and soil properties.	Nepal	M.Sc	1991
35. A. Changere	Soil erosion and crop productivity: assessment and prediction.	Ethiopia	Ph.D	1993
36. M.L. Thomas	Land use and management effects on soil properties, runoff, erosion and water quality.	St. Lucia	M.Sc	1991
37. J. Herrick	Restoration of tropical pastures by dung pats.	U.S.A.	Ph.D	1993
38. M. Hemminger	Water table management effects on soil physical and hydrological properties.	U.S.A.	M.Sc	1993
39. M. Romero	Inter-rill erosion related to soil management and soil properties.	Costa Rica	M.Sc	1993
40. M. Tenywa	Partial areas leading to preferential runoff and erosion.	Uganda	Ph.D	1993
41. E. Salchow	Inter-dependent physical properties in spatially variable alluvial soils of southern Ohio.	U.S.A.	M.Sc	1994
42. P. Fahnestock	Soil erosion and crop productivity.	U.S.A.	M.Sc	1994
43. R. Bajracharya	Soil crusting and accelerated erosion.	Nepal	Ph.D	1995
44. Par Ivar Vaje	Nitrogen and moisture interaction on eroded soils.	Norway	Ph.D	1998

## RESEARCH THESES OF GRADUATE STUDENTS SUPERVISED (continued)

Name	Thesis Topic	Country	Degree	Year
45. A.J. Tenge	Soil moisture and temperature interactions on eroded soils in Mlingano.	Tanzania	M.Sc	1995
46. A. M. Haering	Cropping systems effects on soil structure in Colombia.	Germany	M.Sc	1996
47. E. Salchow	Critical limits of soil quality parameters for eroded phases of Miamian soils.	U.S.A.	Ph.D	2001
48. M. Flowers	Axle load effect on soil physical properties.	U.S.A.	M.Sc	1997
49. M. Sullivan	Soil drainage and DOC transport	U.S.A.	M.Sc	1997
50. N. Dagdelen	---	Turkey	M.Sc	1997
51. W. Trujillo	Carbon sequestration by tropical pastures	Columbia	Ph.D	1998
52. Par Ivan Vaje	Soil Erosion in Tanzania	Norway	Ph.D	1998
53. T. Houser	Mineland reclamation and soil quality	U.S.A.	M.Sc	1999
54. K. Rutan-Jorgensen	Farming systems effects on soil properties	U.S.A.	M.Sc	1999
55. R. Akis	Drainage and nitrate leaching	Turkey	M.Sc	1999
56. S. Duiker	Soil erosion and productivity in the Andean region	Holland	Ph.D	2000
57. V. Akala	C sequestration by mineland reclamation	India	Ph.D	2000
58. A. Lantz	Land use effects on C pool in soils of Ohio	U.S.A.	M.Sc	2000
59. M. Wairiu	Soil management and soil quality	Solomon Islands	Ph.D	2001
60. H. Holeplass	Soil carbon dynamics	Norway	M.Sc	2002
61. L. Mulumba	Soil C dynamics in different ecoregions	Uganda	Ph.D	2004
62. J. Hao	Tillage methods and soil C dynamics	China	M.Sc	--
63. K. Mahadevan	Land use and policy issues affecting SOC pool	India	Ph.D	--
64. S. S. Al-Adawi	Soil compaction	Oman	Ph.D	--
65. Y.L. Zinn	Soil carbon sequestration	Brazil	Ph.D	2004
66. K. Awasthi	Watershed management in Nepal	Nepal	Ph.D	2004
67. H. Emery	Organic farming and soil quality	U.S.A.	M.Sc	2005
68. S. Jagadamma	Soil carbon dynamics	India	M.Sc	2005
69. J. Tanzosh	Water quality and land use	U.S.A.	M.Sc	2005
70. J. Elder	Soil carbon dynamics in peat soils	U.S.A.	M.Sc	2005
71. S. Jagadamma	Mechanisms of soil carbon sequestration	India	Ph.D	2008
72. A. Selhorst	Urban soil carbon dynamics	U.S.A.	M.Sc	2007
73. F. Kazi	Gaseous emissions	U.S.A.	M.Sc	--
74. B. Shrestha		U. of Iceland	Ph. D	2007
75. J. Godwin	C Dynamics	U.S.A.	M.Sc	2008
76. Ji Young Jung	Switchgrass	S. Korea	Ph.D	2010
77. U.K. Mishra	Soil Carbon	Nepal	Ph.D	2010
78. Melissa Herman	Intl. Soil Sci.	U.S.A.	M.Sc Honors	2008
79. Gina Zirkle	Urban soil	U.S.A.	M.Sc	2010
80. Anjali Dubey	Carbon footprint	India	M.Sc	2009

## RESEARCH THESES OF GRADUATE STUDENTS SUPERVISED (continued)

	Name	Thesis Topic	Country	Degree	Year
81.	Josh Beniston	Soil Quality	U.S.A.	M.Sc	2010
82.	Paula Chacon	Soil Carbon	Costa Rica	M.Sc	2010
83.	Josh Beniston	Sustainable Agric.	U.S.A.	Ph.D	2013
84.	Ryan Hottle	Biochar	U.S.A.	Ph.D	2013
85.	Chris Eastman	Biochar	U.S.A.	M.Sc	2012
86.	Nick Stanich	Climate Change	U.S.A.	M.Sc	2013
87.	Gina Zirkle	Urban Soils	U.S.A.	Ph.D	2011
88.	Adam Selhorst	Urban Soils	U.S.A.	Ph.D	2011
89.	A.D. Wele	Carbon Sequestration	Norwegian U. of Life Sci.	Ph.D	2011
90.	Merrie Anne Vaurghese	Carbon Footprint of Agriculture	India	M.Sc	2012
91.	Samantha Sekar	Soil Quality	U.S.A.	M.Sc	2012
92.	Demessie Ambachew	Soil Carbon	Norwegian U. of Life Sci.	Ph.D	2012
93.	Taru Lehtinen	Soil Management	U. of Iceland	Ph.D	2014
94.	Olga Vilmundardóttir	Soil Weathering	U. of Iceland	Ph.D	2015
95.	Aweke Gelaw	Soil Carbon	Norwegian U. of Life Sci.	Ph.D	2015
96.	Patrick Bell	Soil Carbon	U.S.A.	Ph.D	2015
97.	Chris Eidson	Soil Quality	U.S.A.	M.Sc	2015
98.	Claire Sutton	Soil Quality	U.S.A.	M.Sc	2015
99.	Nall Moonilall	Biochar	U.S.A.	M.Sc	2015
100.	Yiming Zhao	Climate Change	China	M.Sc	2015
101.	Reed Johnson	Soil Quality	U.S.A.	M.Sc	2015
102.	Ellen Maas	Predicting Soil Carbon	U.S.A.	M.Sc	2016
103.	Henry Anton Peller	Tropical soil management in Belize	U.S.A.	M.Sc	2017
104.	Eric Stein	Land use and soil properties in Tanzania	U.S.A.	MENR	2017
105.	Steven Doyle	On-farm risk assessment	U.S.A.	M.Sc	2018
106.	Chloe Turner	Soil formation on glacial moraine	U.S.A.	M.Sc	2018
107.	Ellen Maas	Modeling soil carbon	U.S.A.	Ph.D	2020
108.	Francis Clarke	Biofuel feed stocks	U.S.A.	M.Sc	2020
109.	Patricia Cordero-Irizarry		Puerto Rico	Ph.D	2021
110.	Henry Anton Peller		U.S.A	Ph.D	2021
111.	Hengkang Zhao	Soil quality	China	Ph. D	
112.	Nall Moonilall	Restoration of eroded soils	U.S.A.	Ph.D.	
113.	Anna Kolganova		Russia	MSc	
114.	Brittany Multer		U.S.A	MSc	
115.	Ming Wang		China	M.Sc	

## POSTDOCTORAL FELLOWS/RESEARCH ASSOCIATES SUPERVISED

Name	Country	Year	Research Topic
1. P.R. Maurya	India	1975-1978	Root Growth And Soil Management
2. D. De Vleeschauwer	Belgium	1976-1978	Soil Erosion And Erodibility
3. M. Rodriguez	Columbia	1979-1980	Water Management For Rice
4. P. Rousseau	Belgium	1980-1982	Soil Erodibility
5. H. Madaukor	Nigeria	1982-1984	Root Growth In Compacted Soils
6. B.S. Ghuman	India	1981-1983	Soil Temperature Regime
7. O. Opara-Nadi	Nigeria	1983-1986	Water Uptake By Plants
8. B.S. Ghuman	India	1985-1988	Deforestation Of Tropical Rainforest
9. M. Ebeid	Egypt	1990-1991	Long-Term Soil Management Experiments
10. M. Reeves	USA	1991-1993	N-Use Efficiency And Multi-Cropping
11. J. McLaughlin	USA	1991-1992	Gaseous Emission From Soils
12. R. Bajracharya	Nepal	1995 -1997	Soil Erosion And Carbon Dynamics
13. G.C. Starr	U.S.A.	1998 -1999	Soil Erosion And Carbon Pools And Dynamics
14. J. Hopkins	U.S.A.	1999 - 2001	Impacts Of Land Degradation
15. P. Jacinthe	Haiti	1999 - 2000	Soil Erosion And C Dynamics
16. Y-L. Hao	China	1999-2001	Land Use And C Dynamics
17. C. den Biggelaar	Holland	1999-2000	Soil Degradation And Productivity
18. W. Trujillo	Colombia	2000-2001	Soil Carbon Sequestration
19. V. Akala	India	2000-2001	Mineland Restoration For Soil C Sequestration
20. M. Ahmadi	Iran	1995-2000	Soil Compaction
21. M. Huffman	USA	2001 - 2003	Cropping Systems/Cover Crops
22. M. Shukla	India	2001 - 2002	Soil Quality
23. Z. Tan	China	2001 - 2005	Soil C Pool And Baseline
24. P. Puget	France	2001 - 2002	Soil C Dynamics
25. A. Eynard	Italy	2002 - 2003	Soil Degradation And Productivity
26. M. Jarecki	Poland	2002 - 2004	Soil Carbon Dynamics
27. C. Bronick	USA	2002 - 2004	Soil Structure
28. V. Polyakov	Ukraine	2002 - 2004	Soil Erosion And Carbon
29. H. Blanco	Bolivia	2004 - 2007	Soil Structure And Carbon
30. R. Lemus	Panama	2004 - 2006	Energy Crops
31. K. Lorenz	Germany	2004 - 2011	Soil Carbon Dynamics
32. D. Jenerette	USA	2004 - 2005	Interphase Between Terrestrial And Aquatic Ecosystems
33. J. Jimenez	Spain	2005- 2007	Carbon Sequestration In Costa Rica
34. F. Sartori	Italy	2005- 2007	Carbon Sequestration And Soil Erosion
35. S. Christopher	USA	2005 - 2006	Carbon Sequestration
36. K. Kim	S. Korea	2006	Carbon Sequestration
37. R. Shrestha	Nepal	2004-2011	Minesoil
38. D. Ussiri	Tanzania	2004-2011	Minesoil
39. A. Chatherjee	India	2007-2008	Soil Carbon Assessment

## POSTDOCTORAL FELLOWS/RESEARCH ASSOCIATES SUPERVISED (continued)

Name	Country	Year	Research Topic
40. I. Stavi	Israel	2008-2009	Erosion & Carbon Dynamics
41. R. Mukundan	India	2009	Soil Carbon
42. S. Kumar	USA/India	2010-2012	Soil Carbon
43. K. Atsunobo	Japan	2010-2011	Soil Carbon
44. C. Bonin	USA	2011-2012	Biofuel
45. M. Ibrahim	Egypt	2011-2012	Soil Carbon
46. R. Liu	China	2011-2012	Soil Carbon
47. P. Sternberg	Germany	2011-2012	Minesoil
48. T. Nakajima	Japan	2011-2012	Minesoil
49. G. Allen	USA	2011-2013	Minesoil
50. A. Mukherjee	USA/India	2012-2015	Minesoil
51. V. Obade	Kenya	2012-2015	GIS
52. J. Guzman	USA	2013-2017	Soil Quality
53. U. Somireddy	India	2012-2014	Biofuel
54. S. Jiang	China	2013-2014	Soil Water Modeling
55. K. Lorenz	Germany	2019-	Soil Carbon Sequestration
56. K. Bridges	USA	2020-	Soil Carbon Sequestration
57. S. Das	USA	2021-	On Farm Assessment of Soil Properties
58. U. Acharya	USA	2021-	In Field Measurement of Soil Carbon



## VISITING SCIENTISTS

Name	Country	Year	Research Topic
1. Y. Zainol	Malaysia	1989-1990	Soil Wetness and Anaerobiosis
2. S. Ram	India	1989-1990	Agroforestry
3. A.A. Mahboubi	Iran	1990-1991	Soil Water Management
4. J. Aune	Norway	1993	Soil Productivity
5. V. Snyder	Puerto Rico	1992-1993	Salt Movement
6. M.A. Choudhary	New Zealand	1994-1995	Conservation Tillage
7. J. H. P. Rivera	Colombia	1995-1996	Soil Erodibility
8. Kai Sonder	Germany	1996	Raindrop Size Measurement
9. N. Oti	Nigeria	1996-97	Soil Erosion and Productivity
10. L. Müller	Germany	1997	Soil Drainage
11. E. Schindler	Germany	1997	Soil Drainage
12. P.M. Rao	India	1998	Soil Characterization
13. P. Subbian	India	1998	Sustainable Agriculture
14. P.K. Chhonkar	India	1998	Mineland Reclamation
15. C. Cerri	Brazil	1998-99	Soil Degradation
16. R.K. Rattan	India	1999	Nutrient Dynamics and Soil Quality
17. J.M. Sa	Brazil	1999	Conservation Tillage and Soil C Dynamics
18. G.S. Saroa	India	2000	Residue Management
19. E. Schindler	Germany	2000	Soil physical properties
20. B.R. Singh	Norway	2001	Soil Carbon Sequestration
21. H. Holeplass	Norway	2002	Soil Carbon Sequestration
22. R. Undan	Philippines	2003	Sustainable Agriculture
23. T. Gunnar-Vagen	Norway	2004	Soil Quality
24. B. Shrestha	Norway/Nepal	2005	Soil Carbon Sequestration
25. K. Habtegebrial	Norway/Ethiopia	2005	Soil Quality
26. A. Ul-Hassan Khan	Pakistan	2005-2006	Soil Carbon Sequestration
27. A. D. Wele	Norway/Ethiopia	2005-2006	Soil Carbon Sequestration
28. Girmay Gebersamuel Abraha	Norway/Ethiopia	2005	
29. M. Abid	Pakistan	2006 - 2007	Soil C Dynamics
30. G. Gísladóttir	Iceland	2007, 2008, 2009	Paleosols, Carbon Dynamics in Glaciated Soils
31. R. Latif	Pakistan	2007-2008	Soil Quality
32. R. Lopez-Bellido	Spain	2007-2008	Soil C Dynamics
33. A. Bau	Iceland	2008	Soil C Assessment
34. M. Almagro Bonmati	Spain	2007	Soil C Dynamics
35. Jao Carlos Sa	Brazil	2008	Soil C Dynamics
36. B.S. Brar	India	2008	Soil Management
37. M. Velayutham	India	2008	Soil Quality
38. Won Kyo Jung	Korea	2008	Carbon Foot Print
39. M. Elaya Rajan	India	2009	Soil Carbon Sequestration

## VISITING SCIENTISTS (continued)

Name	Country	Year	Research Topic
40. K. Ono	Japan	2009	Carbon Flux in Soils
41. H. Yehia	Egypt	2009	Land Degradation
42. M. Liu	China	2009	Soil Carbon Dynamics
43. M. Rahman	Bangladesh	2009	Soil and Climate Change
44. A. Datta	India	2009	Gaseous Emissions from Soils
45. C. Davis	U.K.	2009	Soil Carbon
46. Ahmel Duyar	Turkey	2009	Soil Degradation
47. Ann Bau	Iceland	2009	Soil Carbon
48. K.K. Bandyopadhyay	India	2010	Soil Carbon
49. Bal Ram Singh	Norway	2010	Soil Quality
50. V. Srinivasan	India	2010	Soil Carbon
51. O.P. Aishwath	India	2010	Soil Carbon & Climate Change
52. G. Gísladóttir	Iceland	2010	Soil Carbon Dynamics
53. C. Singla	India	2010	Soil Water Management
54. S. Veerasamy	India	2010	Methane Emissions in Ruminant
55. M. S. Kahlon	India	2010-2011	Soils and Climate Change
56. M. K. Khosa	India	2010	Soil Carbon Assessment
57. I. Ortas	Turkey	2010-2011	Soil Quality
58. V. Srinivasan	India	2010	Soil Carbon Dynamics
59. G. Aweke	Ethiopia	2010	Soil Quality
60. A. Lenz	Germany	2010	Soil Carbon
61. H.P. Maheswarappa	India	2010	Soil Quality
62. O. Vilmondardóttir	Iceland	2010-2011	Soil Carbon
63. A. Demessie	Norway	2011	Soil Carbon
64. A. Gelaw	Norway	2011	Soil Carbon
65. L. Long	China	2011	Soil Carbon
66. X. Kong	China	2011	Soil Carbon
67. M. Schmitz	Germany	2011	Soil Carbon
68. M. Fan	China	2011	Soil Carbon
69. H. Chen	China	2011	Soil Carbon
70. S. Adhikari	India	2011	Soil Carbon
71. J. Dungiat	England	2011	Soil Carbon
72. F. Heitkamp	Germany	2011-2012	Soil Carbon
73. G. Singh	India	2011-2012	Soil Carbon
74. N. Lenka	India	2011 -2012	Soil Water
75. F. Tivet	France	2011-2012	Soil Carbon
76. Y. Liang	China	2011-2013	Soil Carbon
77. J. Sa	Brazil	2012	Soil Carbon
78. J. Dungiat	England	2012	Soil Carbon

## VISITING SCIENTISTS (continued)

Name	Country	Year	Research Topic
79. D.A. Mengistu	Ethiopia	2012	Soil Quality
80. G. de Freitas Seben Junior	Brazil	2012	Soil Carbon
81. E.L. de Sousa Neto	Brazil	2012	Soil Quality
82. A.B. Andrade	Brazil	2012	Soil Quality and Carbon
83. G. Gísladóttir	Iceland	2012	Soil Carbon Dynamics
84. K. Takahashi	Japan	2012	Pedology
85. D. Hopkins	U.K.	2012	Soil Carbon
86. E. Cerri	Brazil	2012	Climate Change & Soil Carbon
87. S.M.F. Maia	Brazil	2012	Climate Change & Soil Carbon
88. A. Kumar	India	2012	Soil Quality
89. Jose Eduardo Cora	Brazil	2012	Soil Carbon
90. H. Zhang	China	2012-2013	Soil Carbon
91. X. Kong	China	2012	Soil Quality
92. G.B. Aydın	Turkey	2012	Soil Carbon
93. M. Alessandra	Brazil	2012-2013	Soil Carbon
94. G. Anghinoni	Brazil	2013	Soil Mgmt., Conserv. Agric., Carbon Sequest.
95. S. Verma	India	2013-2014	C Sequest., GHGs, Soil Health
96. A. Hassan	Pakistan	2013-2014	Soil Carbon Dynamics & Land Use
97. M.S. Venkatesh	India	2013	C Sequestration, Climate Change
98. D. Mandal	India	2013	Soil Erosion-Induced Loss of Organic Carbon
99. A. Das	India	2013	Conservation Agriculture, Climate Change
100. S.K. Nag	India	2013	Carbon Sequestration in Wetlands
101. G.S. Dheri	India	2013-2014	Carbon Trading/Carbon Seq./Climate Change (Wetlands)
102. F. Meng	China	2013	Carbon Mgmt and Seq. in Agricultural Sector
103. R. Bordonal	Brazil	2013-2014	GHG Mitigation
104. P. Jha	India	2013-2014	Soil carbon stabilization
105. S.V. Baweja	India	2014	Geoinformatics for Natural Resource Mgmt.
106. C. Briedis	Brazil	2014-2015	Carbon Mitigation & Saturation
107. H. Biswas	India	2014	Ecosystem carbon sequestration
108. R. Kaushal	India	2014	Ecosystem carbon sequestration
109. H. Jin	China	2014	Conservation agriculture
110. T. Ning	China	2014-2015	Soil carbon sequestration and crop carbon fixation
111. A. Velmurugan	India	2014	Carbon sequestration in degraded lands
112. A. Gennadyiev	Russia	2014	Soil erosion and soil carbon accumulation
113. X. Kong	China	2014	Carbon sequestration in HHH Plains
114. Meiling Zhang	China	2014-2015	Ecological model and carbon cycle
115. A.P. Filho	Brazil	2014-2015	Sustainable agriculture, adoption of no-till
116. S. Yadav Singh	India	2014-2015	C management & sequestration
117. A. Jyoti Nath	India	2014-2015	C sequestration in cropland soils
118. H. Zhang	China	2014-2015	Absorption of CO <sub>2</sub> with porous materials

## VISITING SCIENTISTS (continued)

Name	Country	Year	Research Topic
119. E. Jose de Padua	Brazil	2015	C retention of SOC, effects of altitude
120. Nawaz Ahmad	Pakistan	2015	Soil Quality and tillage methods
121. Maria Munoz Garcia	Spain	2015	Carbon sequestration and biochar
122. Daniela Schatzel	Germany	2015	Surface residue manipulation
123. Audrey Konda	Brazil	2015	Carbon sequestration in agriculture
124. Sajid Hussain	Pakistan	2015	Mitigation of drought stress in maize hybrid
125. Xin Zhao	China	2015	SOC sequestration and conservation agriculture
126. Kaile Mai	China	2015-2016	Forestry
127. Jose Alvarez Puente	Spain	2015-	Biochar
128. Simi Mehta	India	2015-2016	US-India agricultural cooperation
129. Muhammad Azhar	Pakistan	2016	Greenhouse gas emissions
130. Huifang Han	China	2016	Soil carbon sequestration
131. Jayanta Layek	India	2016-2017	Biochar: Impacts on soil physical quality and carbon dynamics
132. Ram Swaroop Meena	India	2016-2017	Soil Carbon Sequestration and Climate Change Mitigation
133. Qingbio Wu	China	2016-2017	Estimating SOM storage and thermal stability by the loss of ignition
134. Gulab Singh Yadav	India	2016-2017	Role of soil C-dynamics in mitigating greenhouse gas emission
135. Qingqing Cao	China	2016-2017	Carbon Sequestration
136. Safdar Hussain	Pakistan	2017	Crop residue mulches and N on C sequestration and GHG emissions
137. Shuangyi Li	China	2017	SOC, plastic film mulching and fertilization with <sup>13</sup> C labeling method
138. Cristina Chinchilla Soto	Costa Rica	2017	Soil carbon dynamics in tropical grasslands
139. Tarik Mitran	India	2017	SOC sequestration potential through Geospatial tech and Modelling
140. Atif Javed	Pakistan	2017	Soil water, carbon and nitrogen dynamics
141. Somangouda Patil	Morocco	2017	Agriculture and the Environment in India
142. Boris Boincean	Moldova	2017-2018	Sustainable and Climate-Resilient Management of Chernozems
143. Milson Serafim	Brazil	2017-2018	Soil management under no-tillage in areas of high soybean yield
144. Muhammad Shaukat	Pakistan	2017-2018	Biochar addition and N fertilization on soil temp. and GHGs efflux
145. Federico Terra	Brazil	2017	Models of soil loss prediction based on USLE: A Review
146. Manman Fan	China	2017-2018	Soil carbon sequestration in an intensive agricultural region of E. China
147. Yao Jingtao	China	2017-2018	Land use change and soil carbon effects
148. Zhenwei Song	China	2017-2018	Soil carbon dynamics in agroecosystem
149. Kristine Pascal	Philippines	2017	Climate-Smart Agriculture: Research wetting-dry production system
150. Changqi Zhang	China	2018-2019	N & carbon management and environmental issues during ag. production
151. Junjie Li	China	2018-2019	The technology for restoration of soil fertility of degraded soil
152. Nadia Sabir	Pakistan	2018-2019	Improving carbon storage of an Inceptisols by soil and crop management
153. Biswajit Das	India	2019	Mulching effects on SOC dynamics and mitigation of GHG emissions
154. Xiaodan Gao	China	2019	Soil Organic-Mineral Complex and the Stability of Organic Matter
155. Yingde Xu	China	2019-2020	Soil Organic Carbon Turnover and Sequestration Mechanism
156. Fengkui Qian	China	2019	Restoration and management of farmland soil quality
157. Nour el Houda Abed	Algeria	2019	The beneficial legumes/rhizobia symbiosis in intercropping
158. Karabi Pathak	India	2019-2020	Long-term No-till Technique: Climate Resilient Agriculture

159. Hao Su

China

2019-2020

Cropland System Health and Protection

**VISITING SCIENTISTS (continued)**

<b>Name</b>	<b>Country</b>	<b>Year</b>	<b>Research Topic</b>
160. Mah-Noor Azad	Pakistan	2020	Estimation of Soil Erosion and Field Water Balance Equation
161. Manjeet Kaur	India	2020	Management of Soil Carbon and Greenhouse Gas Emissions
162. Vladimir Ivezic	Czech Republic	2020	Carbon Sequestration in Agroforestry Systems
163. Gurmeet Singh Dheri	India	2020	Soil Carbon Management and Greenhouse Gas Emissions
164. Waseem Hassan	Pakistan	2021	

### SHORT-TERM VISITING SCHOLARS (2-4 WEEKS)

Name	Affiliation	Period	Topic
1. A.K. Yadav	CCSHAU, Hisar, India	4-10 September 2003	Carbon Sequestration
2. G. Jayashree	CCPI, Angrau, Hyderabad	29 September – 12 October 2003	Advanced Tillage Practices
3. T.D. Pandey	CCPI, IGKV, Jagadapur	29 September – 12 October 2003	Advanced Tillage Practices
4. N.G. Barua	CCPI, AAU, Jorhat	29 September – 12 October 2003	Advanced Tillage Practices
5. S. Sarkar	CCPI, BCKV, Gayeshpur	29 September – 12 October 2003	Advanced Tillage Practices
6. U.K. Mandal	CRIDA	6-19 October 2003	Sustainable Land Resource Management
7. T.K. Sen	NBSSLUP, Nagpur India	20 November – 4 December 2003	Soil Quality Assessment
8. K.R. Sharma	S.K. Univ. of Agric, Jammu	23 February – 15 March 2004	Water Harvesting
9. R.P. Yadav	Central Soil Water Cons. Ct.	23 February – 15 March 2004	Water Harvesting
10. V.K. Sharma	Himachal Agric. Univ. Palampur	8 June – 6 July 2004	Soil Management
11. P.C. Bora	Assam Agric. Univ., Jorhat	11-26 October 2004	Soil Quality
12. S. Sudhishri	Assam Agric. Univ., Jorhat	11-26 October 2004	Soil Quality
13. V. Nayyar	PAU, Ludhiana, India	11-26 October 2004	Soil Management
14. R.P. Rajput	JNKVV, Jabalpur, India	11-26 October 2004	Soil Management
15. D.K. Pahalwan	JNKVV, Jabalpur, India	11-26 October 2004	Soil Management
16. A. Chandrasekaran	MSSRF, Pudukottai	11-26 October 2004	Soil Management
17. D. Singh	PAU, Ludhiana, India	11-26 October 2004	Soil Quality
18. D. Varma	MSSRF, Chennai	11-26 October 2004	Soil Quality

### RESEARCH SCIENTISTS SUPERVISED

Name	Start Month/Year
1. Humberto Blanco-Canqui	
2. Manoj Shukla	
3. Raj Shrestha	
4. Klaus Lorenz	
5. David Ussiri	
6. Sandeep Kumar	
7. Klaus Lorenz	3/2014
8. David Ussiri	3/2014
9. Sami Khanal	8/2014
10. Raj Shrestha	9/2014

**UNDERGRADUATE STUDENTS and INTERNS SUPERVISED**

<b>Name</b>	<b>Year</b>
1. Samantha Sekar	2012
2. Henry Peller	2014-2015
3. Ryan Griffith	2014-2015
4. Anna Newell	2015-
5. Crystina Bakus	2015
6. Blake Weber	2015-
7. Vanessa Colon	2015-
8. Janelle Watts	2016-
9. Lauren Hughes	2017
10. Gabi Collier	2018
11. Alison Swanka	2018-2020
12. Sonam Rustagi	2020-
13. Sia Chitnis (High School)	2020-

