



THE OHIO STATE
UNIVERSITY

CARBON MANAGEMENT AND SEQUESTRATION CENTER

C-MASC NEWSLETTER

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Glinka World Soil Prize

Rome, Italy

On December 5, World Soil Day, Prof. Lal was awarded the 3rd Glinka World Soil Prize for Excellence and Innovation in Soil Science. Prof. Lal was presented with a check for \$15,000 and a gold-plated medal bearing the face of famous Russian soil scientist, Konstantin Glinka. World Soil Day is hosted annually by the Food and Agriculture Organization of the United Nations. Award money will be donated to the C-MASC endowment.

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2018 was a great year for fall foliage in Columbus, Ohio; trees (left) surrounding Kottman Hall were displaying vibrant colors even in the first week of November. Parts of the Midwestern United States experienced record or near-record warm temperatures and especially rainy conditions this summer and into September. Since then, temperatures have dipped well below freezing and most leaves have fallen making for a wintry end to the autumn semester.

New Visiting Scholars

Xiaodan Gao

Dr. Xiaodan Gao arrived in Columbus in November from her home country of China. She is an assistant professor in the College of Land and Environment, at Shenyang Agricultural University (SYAU). She joined C-MASC as a visiting scholar for one year. Dr. Gao's research interests mainly focus on: "The stability of soil organic matter; the mesoscale mechanism of organo-mineral interaction; soil colloid interaction and the roles of cations and anions in soil solid-liquid interface". In recent years, she specifically conducted her research on black soil mineral-humus interaction in Northeast China and how the base cations influence this interaction process. Her research in China is funded by National Natural Science Foundation of China (NSFC), China Post-doctoral Science Foundation (CPSF) and China Scholarship Council (CSC). Dr. Gao hopes to come to a better understanding of mineral stability mechanism of soil organic carbon at C-MASC, and to promote scientific exchange and cooperation between SYAU and C-MASC, the Ohio State University.



Fengkui Qian



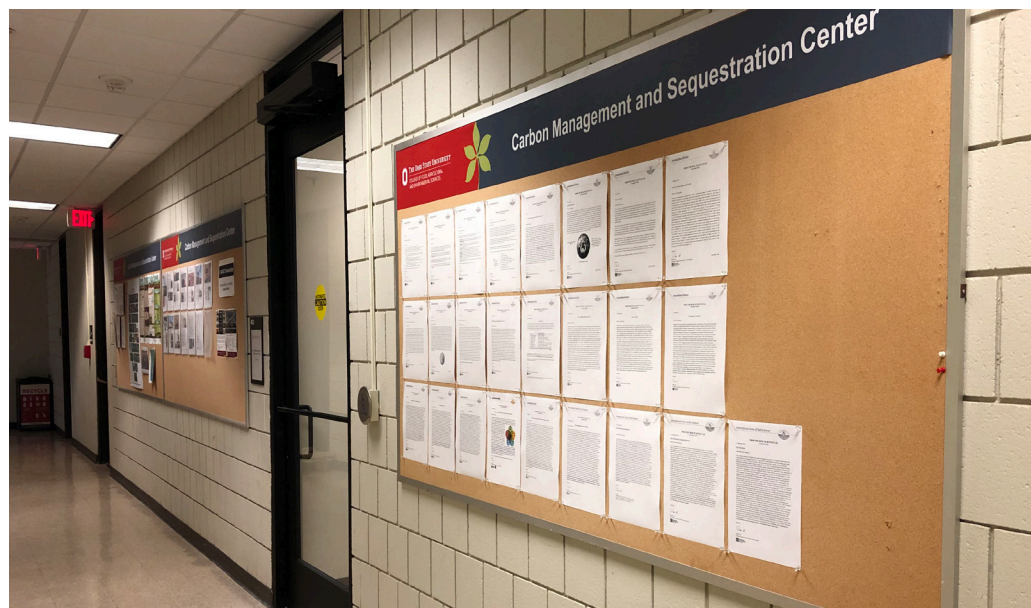
Dr. Fengkui Qian joined C-MASC in November 2018. He received his PhD in Land Use and Information Technology in July 2014 from Shenyang Agricultural University. He is also the vice secretary-general of the Liaoning Geological Society and the senior member of the Soil Science Society, Geographical Society of China and the China Society of Natural Resources. His research has focused on farmland quality, farmland protection and the Land Evaluation and Site Assessment (LESA) system. In recent years, Dr. Qian has mainly focused his research on farmland quality analysis, and has published more than 40 research papers, nearly half of which have been included in EI, CSCI. Dr. Qian has many academic honors and awards in his research fields. In 2015, he was selected to be "Outstanding Teacher of Tian Zhu Mountain" Support Plan in Shenyang Agricultural University. Furthermore, Dr. Qian was awarded the "Science & Technology Award for Chinese Youth" from the China Society of Natural Resources (CSNR). In November, Dr. Qian arrived at OSU as a visiting scholar for one year and sincerely appreciates the China Scholarship Council and Prof. Lal for giving him the opportunity to study at C-MASC.

C-MASC Thanksgiving



C-MASC colleagues and several family members gathered for the annual Thanksgiving feast on Tuesday, November 12th. Visiting scholars, students, and C-MASC staff shared stories about popular holidays in their home countries while enjoying traditional Thanksgiving foods such as turkey, mashed potatoes, and pumpkin pie. Above from left to right: Yingde Xu, Klaus Lorenz, Frank Clark, Ming Wang, David Ussiri, Junjie Li, Adan Zaheer, Changqi Zhang, Manman Fan, Nicola Lorenz, Tess Phinney, Nadia Sabir, Kyle Sklenka, Kim Keethler, Basant Rimal, Nall Moonilall, Rattan Lal. Those absent include: Ellen Maas, Hengkang Zhao, Henry Peller, José Álvarez, Xiaodan Gao, Fengkui Qian, Janelle Watts, and Gabi Collier.

The C-MASC Office has a New Look



If you have paid a visit to the C-MASC office at 422 Kottman Hall lately, you may have noticed that something was a little different. The C-MASC office entrance now has a floor-to-ceiling glass door. This new entrance will help differentiate the C-MASC office from other suites on the floor. Stay tuned for more changes to the C-MASC office look.

Honoring Dr. Bobby A. Stewart



Annual American Society of Agronomy (ASA) Meeting Baltimore, Maryland



Prof. Lal and Dr. B.A. Stewart (top, third from left) are long-time colleagues responsible for the publication of the book series: *Advances in Soil Science*. A special session symposium entitled “Water, Soil, Crops and People in a Changing Climate: the Agronomic Legacy of Dr. B.A. Stewart” was hosted at the 2018 international annual meeting of the American Society of Agronomy, the Crop Science Society of America and the Canadian Society of Agronomy in honor of Dr. Stewart. Approximately 2,500 professionals, scientists and students attended this year’s ASA meeting on November 4-7. Dr. Stewart is a renowned researcher, educator, and advocate of agriculture production and natural resource management with over 60 years of service to soil science. Dr. Stewart retired in December 2017 as a Distinguished Professor of Agriculture and the Director of the Dryland Agriculture Institute at West Texas A&M University in Canyon, Texas.

Student Spotlight

Ellen Maas Passes Oral Candidacy Exam

Columbus, Ohio



Ellen Maas and her husband courtesy of Ellen Maas

Congratulations to Ellen Maas, a soil science PhD student and advisee of Prof. Lal, for successfully passing her oral candidacy exam. Regarding her recent defense, Ellen says: "soil carbon is a critical component of healthy soil and many factors control the rates of its accumulation and turnover. Modeling these processes enables the estimation of the fate of carbon in soil under variable conditions of climate and land management. The ability to provide accurate predictions is necessary in order to guide the practices of farmers and the regulations set by policy makers. This research study has two broad objectives: 1) to evaluate the performance of the Millennium model, a brand-new soil carbon model, against both field data and the predictive performance of RothC, an older and more established model, and 2) to evaluate the effectiveness of remote sensing to provide some of the inputs required by the models."

Former Visiting Scholar earns PhD



Congratulations to Atif Javed for completing his PhD in Soil and Environmental Science from the Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Pakistan. Dr. Javed visited the Ohio State University as a visiting scholar for six months under HEC International Research Support Initiative Program to work with Prof. Lal. The opportunity of working in a multi-cultural and multi-ethnic environment in the United States, he says, broadened his horizons, "I was introduced to new vistas of knowledge and recent advancements in field of my interest. I learnt different and innovative methodologies in more depth that would be helpful in my research career. During the course of my Ph.D. (Soil Science) studies."

Dr. Javed's core expertise is in the field of soil science and his focused area of research is soil physics. His research interests include improving water use efficiency in maize-wheat system, modelling water and nitrogen dynamics under different management practices and improving soil health for sustainable crop production. Water resources are depleting continuously, and farmers in Pakistan are applying nitrogen (N) at high rates to crops due to low soil organic matter and N. Dr. Javed says that mulching has a great potential for soil moisture conservation and improving water use efficiency of crops and this research has a great potential for agriculture in Pakistan due to limited and rapidly depleting natural resources. Pakistan's economy is mostly agrarian, and water is vital for growth of agriculture in Pakistan. There is increasing competition for water demands among different sectors. Therefore, this area is of great significance to optimize irrigation and nitrogen using mulches to improve crop productivity and soil quality in semi-arid cropping systems of Punjab, Pakistan.

Student Spotlight



Henry Peller presenting at the BCFN competition.

Photo courtesy of: Henry Peller

Henry Anton Peller Wins 2018 BCFN YES! Milan, Italy

The BCFN YES! competition involved 120 applicants from around the world, among whom a top 10 were selected. Henry Anton Peller, a soil science PhD student and his competition partner, Cathy Smith of the UK, were among the top 10, and joined 9 other individuals and teams in Milan, Italy this November to present their research to the “Barilla Food and Nutrition Conference.” The Barilla foundation is a subsidiary of the world pasta company, Barilla, and each year awards 2-3 innovative young scientists or teams working in food, agriculture, and nutrition funding for their next year of research. On Tuesday, September 27, Peller presented a 5-minute summary of their project, titled “YES! to participatory agroecology: Farmer-led plant breeding and soil regeneration in Maya milpas of southern Belize.” The project involves working closely with Maya farmers, which Peller has been doing for the past 3 years, with three core activities: (1) farmer-to-farmer learning, that is, regular meetings and exchanges in groups of farmers to ask questions, share ideas, identify farming problems, and design experiments. This has flowed into (2) participatory plant breeding, an approach where farmers lead the trial, selection, and dissemination of lots of seeds. Peller is working already with over 2 dozen maize and cover crop cultivars, and many more to come, and they plant these both on farmers land, and on randomized complete block experiments, to study plant phenotype, yield, grass weed and soil fertility affects (for cover crops), and so on. Within this participatory plant breeding work, (3) they are focusing on cover crops, especially on creating polycultures or complex species mixes for synergistic effects among cover crop species towards enhanced soil fertility and weed control affects. With the support of BCFN, Peller and his team will expand their work on all 3 fronts, making many more participatory experiments with Maya farmers to solve challenges in their milpa (or maize & bean farm) management, and aiming to move dozens of seeds around southern Belize to hundreds of farmers.



Barilla
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Henry Anton Peller



The Ohio State University - USA
USA

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Where in the World is Prof. Lal?

University of Agricultural Sciences

Dharwad, Karnataka, India



Prof. Lal visited the University of Agricultural Sciences of Dharwad, Karnataka India from 19-22 November, 2018. The objective was to visit the research program of Dr. S.D. Patil (left, opposite Prof. Lal), who was a Borlaug visiting scholar at C-MASC in 2017. About 350 miles (555km) south east of Mumbai, Dharwad is known as an educational hub and also renowned for agriculture and industrial development. The University of Agricultural Sciences, Dharwad is a public institution and was established in 1986.

While visiting, Prof. Lal was shown horticultural research involving aquaculture (below, right), vegetable and flower production in screen houses using grounded coconut shell as the growth media and plastic mulch to produce vegetables (below, left).



IAUA Golden Jubilee

New Delhi, India



The theme of the 2018 international conference hosted by the Indian Agricultural Universities Association (IAUA) was: "Agricultural Education - Sharing global Experiences". The conference was held from November 23-25 and Prof. Lal presented on the topic of "Creating World Class Teaching: learning and academic ambience in agricultural universities in India". IAUA was established in 1967 with only 9 founding member institutions. Today, membership of the IAUA has grown to nearly 70 institutions. The association aims to promote agricultural research, education and extension in universities across India.

2018 Publications

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- 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.
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2018 Publications

Chapters in Multi-Authored Books (Continued)

Stuttgart, Germany: 61-71.

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Invited Keynote Presentations

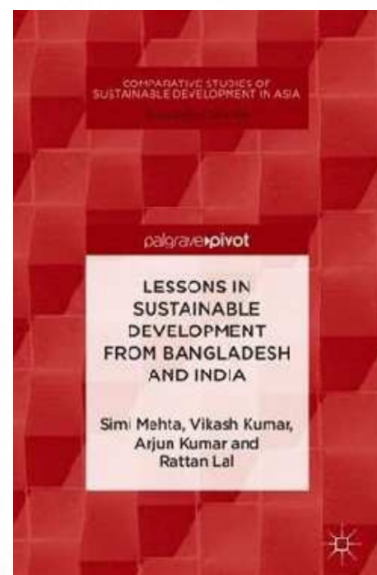
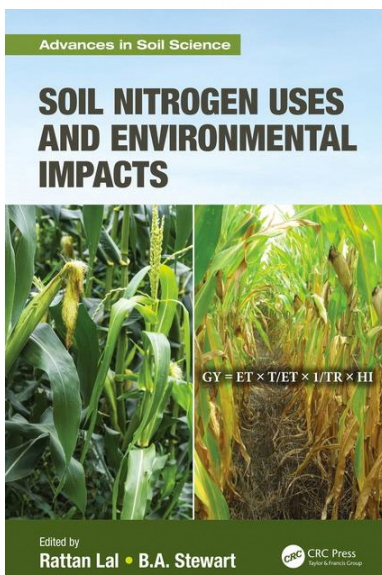
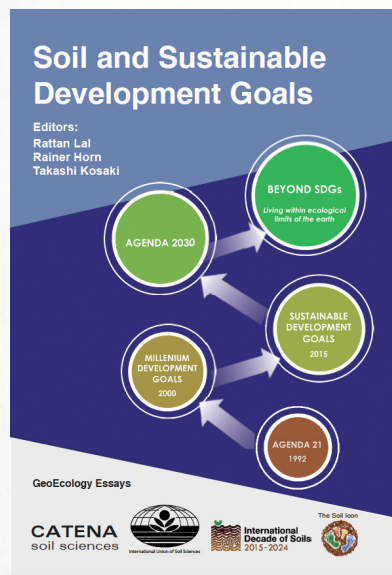
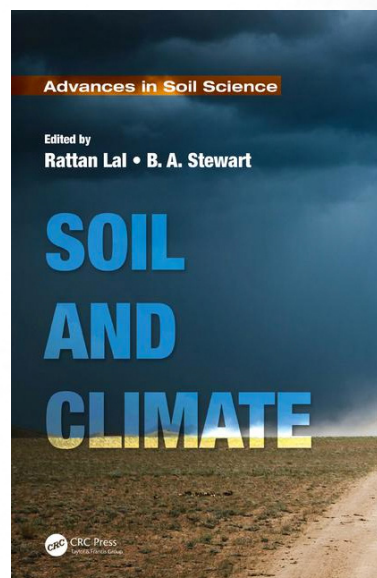
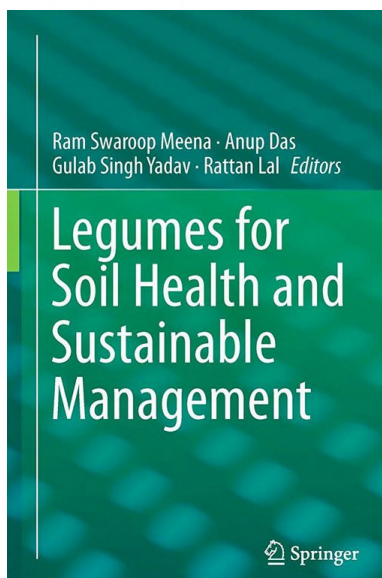
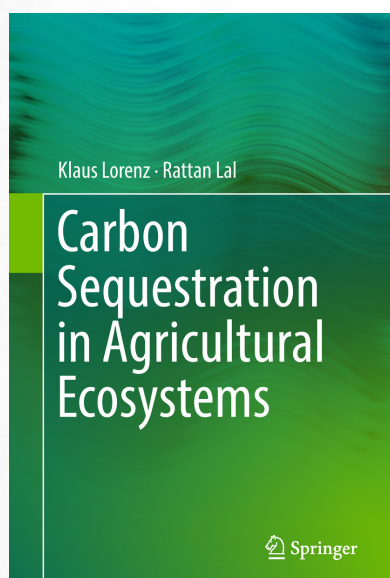
- Lal, R. 2018. Soil carbon and climate change. Moonlight on the Marsh Lecture, 1st March 2018, Naples, Florida.
- Lal, R. 2018. Agriculture and the environment. IARI, 12th March 2018, New Delhi, India.
- Lal, R. 2018. Managing agricultural soils of Pakistan for food and climate. International 17th Congress of Soil Science, Soil Science Society of Pakistan, 13-15th March 2018, Faisalabad, Pakistan
- Lal, R. 2018. Soil degradation in India and the Positive Role of Plant Breeding. Rao Bahadur Dr. Ram Dhan Singh Memorial Lecture, HAU. 14th March 2018, Hisar, India
- Lal, R. 2018. Soil organic carbon and climate change. Maharishi Dayanand University, 14th March 2018, Rohtak, India
- Lal, R. 2018. Managing soil carbon for food and climate. University of Cost Rica, 5th April 2018, San Jose, Costa Rica.
- Lal, R. 2018. Soil health and India's agriculture. TAAS, 12th April 2018, New Delhi, India.
- Lal, R. 2018. Managing soils in the world of 11 billion people. PhilRice, 19th April 2018, Muñoz, Philippines
- Lal, R. 2018. Managing urban soils for food and environment. SUITMA 9, 22-26th May 2018, Moscow, Russia
- Lal, R. 2018. Measurements and monitoring of soil organic carbon stocks. 28th May 2018, Beijing, China.
- Lal, R. 2018. Historical evolution of agriculture and soil management in China. 30th May 2018, Hefei, Anhui Province, China.
- Lal, R. 2018. Soil-centric approach to advancing global food security. GIFS, 18th June 2018, Saskatoon, Canada.
- Lal, R. 2018. Soil organic carbon for climate, food, and other ecosystem services. French Embassy, 19th June 2018, Washington, D.C.
- Lal, R. 2018. Agroecological approach to soil health. Planet A Conference, June 27-28, Châlons-en-Champagne, France.
- Lal, R. 2018. Soil as the keystone of mitigation and adaptation of climate change. UIMP, July 24-25, Santander, Spain.
- Lal, R. 2018. Beyond food and fuel: The power of soil to address global issues, keynote presentation. 21 WCSS, 13th August, Rio de Janeiro, Brazil.
- Lal, R. 2018. Bringing soil science to society. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
- Lal, R. 2018. Brining soil science to society. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
- Lal, R. 2018. Soil-human-health nexus. 21WCSS, 12-18 August, Rio de Janeiro, Brazil.
- Lal, R. 2018. Evolution of conservation agriculture. 21st ISTRO Conference, 24-27 September, Paris, France.
- Lal, R. 2018. Managing soil health for eco-intensification of agro-ecosystems, Patagonia headquarters, 5 September, Ventre, California.
- Lal, R. 2018. Power of soil and global issues. 54th annual Nobel Conference, Gustavus Adolphus College, 1-3 October, Saint Peter, Minnesota.
- Lal, R. 2018. Managing soil health and functionality. Sixth Annual Great Lakes Regional Conference, 7 October, Toledo, Ohio.
- Lal, R. 2018. Soil management for healthy food and environment. "Soil Food Week", 9-14 October, Ecommunity Park. Oosterwolde, Holland.
- 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.
- 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.
- Lal, R. 2018. Conservation agriculture. Ministry of agriculture and rural affairs (MARA), China 22nd October, Ohio State University, Columbus, Ohio.
- Lal, R. 2018. Managing soils and advance world agriculture. 5th GUCHERA World Agriculture Prize, 28th October, Nanjing, China.

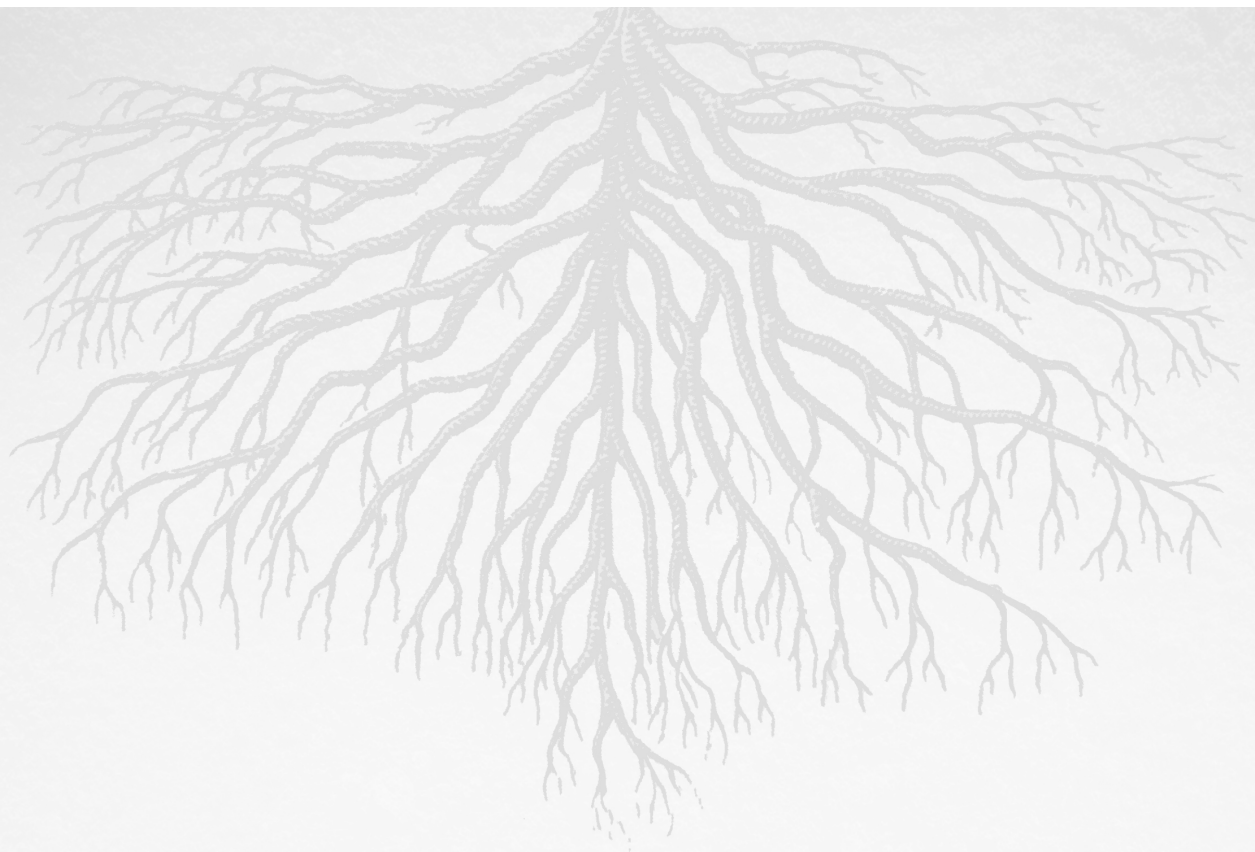
2018 Publications

Invited Keynote Presentations (Continued)

- 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.
- Lal, R. 2018. Sustainable soil management as a solution to soil pollution. 5th December, World Soil Day, FAO, Rome. Italy.

Books Authored and Edited





CONTACT INFORMATION

**Do you have contributions for our next newsletter?
Please contact us!**

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