THE OHIO STATE UNIVERSITY

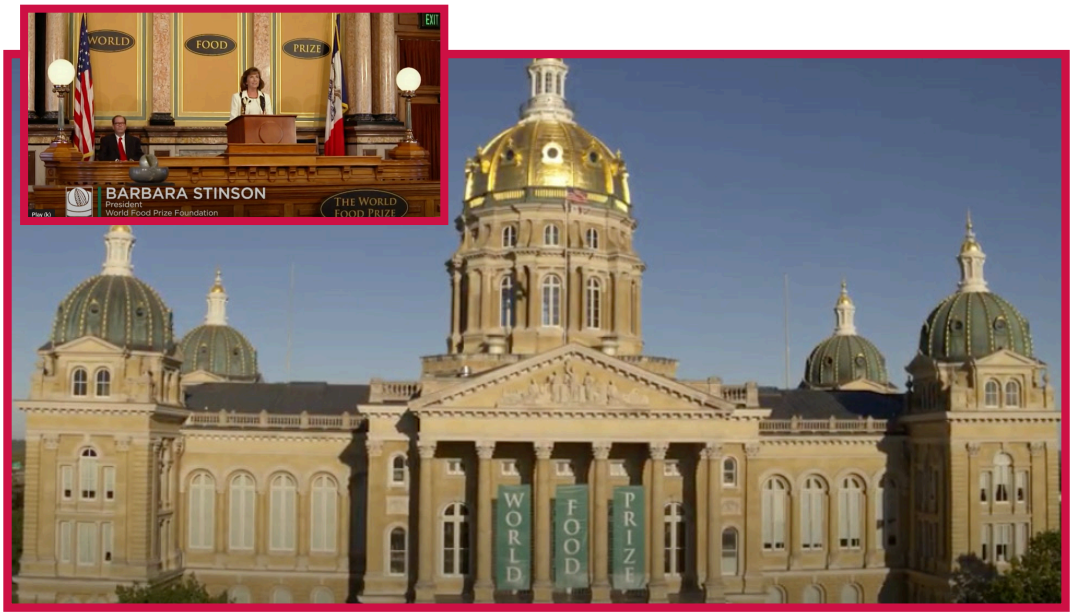
Autumn | 2020

CFAES DR. RATTAN LAL CARBON MANAGEMENT AND SEQUESTRATION CENTER

C-MASC NEWSLETTER

World Food Prize 2020

Dr. Rattan Lal, 50th Laurate



Every year in early fall, Dr. Rattan Lal joins all the world's foremost farmers, agronomists, scientists, researchers, policymakers, and industrialists at the Borlaug Dialogue for a week dedicated to improving the prospects and standing of our world's food systems. This year, he was deeply honored to also join the ranks of the World Food Prize Laureates. (page 2)

IN THIS ISSUE:

Image courtesy OSU Signature Photo Gallery

Falling into Place!

Buckeyes have safely returned to campus in limited numbers. Many staff continue to work from home, while those on campus pratice safe social distancing and masking procedures to keep everyone healthy!

World Food Prize 2020

(con't page 1) Dr. Lal became the 50th World Food Prize Laureate, and the first laureate to attend the World Food Prize virtually. In many ways, this opened doors as those who may not have otherwise been able to see the Laureate ceremony or attend his Iowa State University Norman Borlaug Lecture were able to do so live virtually, and many more have been able see both these events online later (see details on the following pages).

Dr. Lal was humbled by the outpouring of support he received from friends and colleagues around the world during the laureate ceremony and side events, from The Ohio State Univeristy President Kristina Johnson to former President of Iceland, Dr. Olafur Ragnar Grimsson. The ceremony concluded with a heartfelt performance of Kun Faya Kun and a message from its creator, A.R. Rahman. Dr. Lal is grateful to World Food Prize President Barbara Stonson and her whole team, who rose to challenging circumstances and made this once-in-a-lifetime event possible.

CLOCKWISE FROM TOP: Frank Burkett, Dr. Raj Paroda, Dr. Uma Lele, Jeffrey Zellers. SECOND ROW (L to R): UC President Michael Drake, OSU President Kristina Johnson, CFAES Dean Cathann Kress. THIRD ROW (L to R): Dr. Olafur Ragnar Grimsson, Prof. Alex McBratney, Governor of Iowa Kim Reynolds, and A.R. Rahman performs.

Explore the World Food Prize

2020 World Food Prize Laurate Ceremony: https://youtu.be/lGveq7GBC6c

"Translating Science into Action" with V.P. Al Gore (first video at link): https://go.osu.edu/into-action

2020 Iowa State University Norman Borlaug Lecture: https://go.osu.edu/isu-norman-borlaug-lecture

The Ohio State University WFP Side Event: https://youtu.be/4XI_PA6-MVU

World Food Prize 2020

Translating Science Into Action

Des Moines, IA USA *October 12*

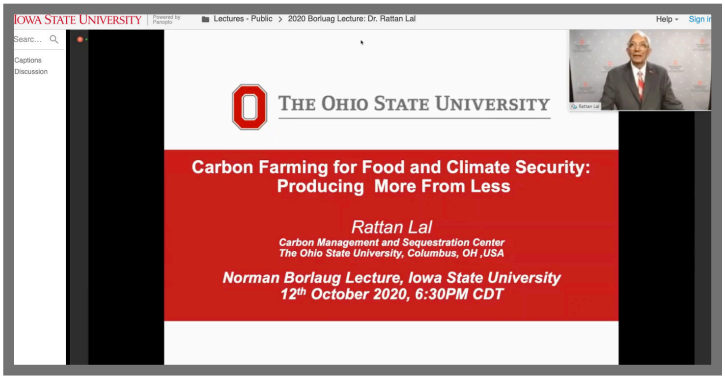
In the opening session of the World Food Prize Borlaug Dialoug, Dr. Rattan Lal (above, top right) was honored to join World Food Prize President Barbara Stinson (top left) and the Former Vice President of the United States, Mr. Al Gore (bottom middle) to discuss the importance of taking the rich knowledge of soils research and bringing it into the real world as an actionable practice that can help address the many daunting challenges the world faces today, from climate change to food security. In a session expertly moderated by WFP President Barbara Stinson, Mr. Gore's deep experience with and knowledge of policymaking and climate activism and Dr. Lal's understanding of the technical and scientific underpinnings of climate and soils research provided lively and inspirational discussion of the next steps needed to bring the tireless work of researchers, agronomists, and farmers to fruition, with tangible results to benefit our food systems and our climate. The entire discussion is available online for free at the first video on this page: **https://go.osu.edu/into-action**

2020 Norman Borlaug Lecture

Iowa State University *October 12*

The evening of October 12th, 2020, Iowa State University President Wendy Wintersteen (bottom left) and Distinguished Professor Dr. Don Beitz (bottom right) welcomed Dr. Rattan Lal to give the traditional Iowa State Univerity Norman Borlaug Lecture. The format of this lecture, however, was anything but traditional, and for the first time, Dr. Lal gave the lecture virtually from the Kottman Hall Studios on The Ohio State University campus. While the circumstances surrounding this turn of events are, of course, deeply unfortunate, it does have a silver lining in that this lecture was broadcast live all over the world, allowing the lecture, entitled "Carbon Farming for Food and Climate Security: Producing More From Less," to reach a much wider audience than it otherwise may have. The lecture is available online for all to see at:

https://go.osu.edu/isu-norman-borlaug-lecture.



World Food Prize 2020

WFP Roundtable #1

At the plenary World Food Prize Roundtable focused on Carbon Sequestration, Sustainability in Agriculture and the Rise of Carbon Markets, Dr. Lal was joined by several distinguished colleagues to discuss "carbon market models and applications of carbon payment systems globally to explore the potential of carbon markets to drive innovations towards climate-positive agriculture." He greatly appreciated the insights and revelations of Gabriel Carballal, Liam Condon, Erik Fyrwald, Elwyn Grainger-Jones, Tamara Marcus, Debbie Reed, Dr. Sally Rockey, the Honorable Debbie Stabenow, and WFP Presdient Barbara Stinson on this important topic.

World Food Prize Side Events

The Ohio State University: Celebrating the Legacy of Dr. Rattan Lal

October 15

The Ohio State University produced a lovely video honoring the legacy of Dr. Lal, and he could not be more humbled or touched by the kind outpouring of support from his home institution. An interview with Ty Higgins from the Ohio Farm Bureau allowed Dr. Lal a chance to express the gratitude he has for all the opporuntities he's been given through his association with The Ohio State University, as well as to give a little more context to his life and professional accomplishments. He would like to thank Dean Cathann Kress, OSU President Kristina Johnson, Vice Provost Gary Pierzynski, as well as Jeff Zellers of Nationwide, Frank Burkett and Ty Higgins of the Farm Bureau, and OSU's professional multimedia team for this kind gesture. We at C-MASC are also excited to share that in this event, Dean Cathann Kress announced that the Carbon Management and Sequestration Center was would become a college level department, officially named the CFAES Dr. Rattan Lal Carbon Management and Sequestration Center.

Available here: https://youtu.be/4XI_PA6-MVU

The Global Youth Institute

October 13 and October 21

Each year, the Global Youth Institute hosts Dr. Lal's favorite World Food Prize side events, allowing him to interact with some of the 200 exceptional high schools students invited to participate. He was able to give feedback to several of the students presenting their findings at the 2020 GYI Roundtable Group 1 on the morning of October 13th. On October 21st, he was pleased to follow up with the Global Youth Institute Delegates as part of the session entitled **Inspiring Climate Action: What Can You(th) Do?**, moderated by Morgan Day. Dr. Lal was heartened to hear the inspiring ideas and background of the future leaders of agriculture. Dr. Lal says: "In youth lies the future of our civilization and the planet. We must invest in them."

World Food Prize 2020

World Food Prize Side Events

Alliance for African Partnership (AAP) and Michigan State University (MSU)

October 13

Dr. Lal joined with Professor Richard Mkandawire, Africa Director for the Alliance for African Partnership (AAP) and Michigan State University (MSU) to discuss the important issues around the future of sustainable agriculture in Africa at **Toward Sustainable Agricultural Productivity, Soil Health, and Resilience in Africa: An Agenda for Research and Action**. In his keynote speech, "Priming Africa's Agriculture," he made the case that Africa is poised to become a breadbasket for the world with appropriate policy and managment adjustments.

Available here: https://youtu.be/inmTyw62AOk

Catholic Relief Services, The Chicago Council, and Colorado State University

October 15

Invited by Catholic Relief Services' Lori Pearson, and the members of The Chicago Council and the Colorado State University, Dr. Lal spoke with Dr. Christian Witt, Dr. Jean Jacques Mbonibaga Muhinda, Dr. Marie-Solei Turmel and Dr. Yemi Akinbamjo at **Scaling Soils Restoration: Developing a Roadmap to Action**, moderated by Dr. Simon Winter of the Syngenta Foundation (pictured left). Dr. Lal's talk, "Soil Health and Food Security in Sub-Saharan Africa," touched on important next steps in promoting regenerative agriculture in Africa.

Available here: https://youtu.be/mDxA9ZOIPv0

FAO and The Alliance to End Hunger

October 15

The high-level discussions at the **Building More Resilient and Sustainable Food Systems for Improved Global Food Security and Nutrition**, hosted by the Food and Agriculture Organization of the United Nations (FAO) with The Alliance to End Hunger were an important side event at the World Food Prize. In his address, "Resilient and Sustainable Food Systems for Achieving Global Food and Nutrition Security," Dr. Lal joined moderator Rob Bertram and the other distingushed speakers outling a sustainable course for agriculture to ensure food for all humanity.

Dr. Lal would like to express his deepest gratitude to all those who have collaborated with him over last five decades. This award is really for the farmers, agronomists, researchers and scientists who have contributed to the work of C-MASC on c-sequestration, food security, and soil health, and it would not have been possible without them. ***Thank you!***

Quarterly Viewpoint

FROM THE DESK OF RATTAN LAL

5 November 2020

Seizing the Moment

Finally, after a long wait full of anxieties and helplessness, soil science is receiving the attention that it deserves by policymakers from around the world. Notable examples include launch of the "4 Per 1000" initiative at COP21 in Paris in 2015, Adapting African Agriculture (AAA) at COP22 in Marrakesh in 2016, and the Platform for Climate Action in Agriculture (PLACA) at COP25 in Madrid/Santiago in 2019. Above all, an important example is "The Growing Climate Solution Act of 2020" being debated by the U.S. Senate. The Act specifically states that "the agriculture and forestry sectors hold the potential to serve as critical climate solutions." Indeed, this is a very positive development and a step in the right direction. The Act also enumerates that "At scale, agriculture and land use practices can sequester carbon at as low as $10 per Mt CO2e, making it the most cost-effective carbon sequestration method currently available."

While there is a need for additional research on developing and fine-tuning methods of measurement, monitoring and verification of soil organic carbon stock and its changes at farm or landscape/watershed scale, soil scientists have made commendable progress in the science and practice of soil organic carbon in relation to its assessment and management on the one hand and provisioning of several critical ecosystem services on the other. Therefore, it is important that soil scientists seize the moment and work with policymakers for translating science into action for addressing issues of local, regional and global. significance. This is the opportunity that soil scientists have been waiting for, and policymakers are looking up to the soil science community for guidance on the theme of re-carbonization of the biosphere in general and world soils in particular with focus on farming carbon and its commoditization as a salable farm commodity that can be traded in a market. The scientific community must be proactive and work enthusiastically with policymakers and help implement the pro-soil initiatives being proposed.

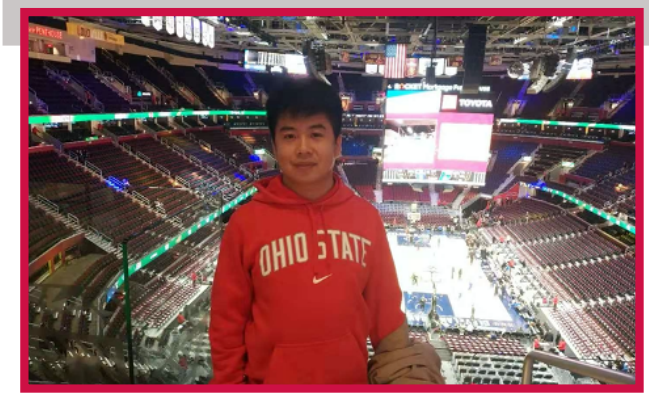
Sincerely,

Rattan Lal
Distinguished University Professor of Soil Science, SENR
Director, Carbon Management and Sequestration Center
Past President, International Union of Soil Sciences
IICA Chair in Soil Science & Goodwill Ambassador for Sustainable Development Issues

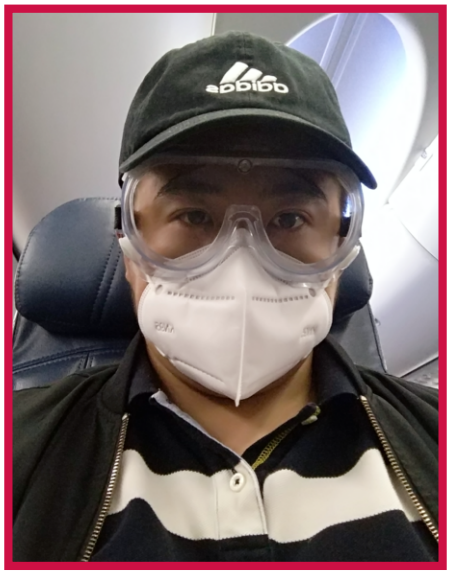
International Decade of Soils 2015-2024

C-MASC Departures

Yingde Xu



I am Yingde Xu, from Shenyang Agricultural University in Shenyang, China. I studied at C-MASC as a visiting scholar from October 8th, 2018 to August 30th under supervision of Professor Rattan Lal. I was really pleased and honored to join this warm family, and I'll always treasure this period of time. I sincerely appreciate the



great help from Dr. Lal, Maggie, and Dr. Klaus, etc.

My work at C-MASC was of great relevance to soil health and climate change, since its purpose was to highlight the importance of plant residue decomposition in influencing soil organic carbon balance and soil organic matter formation. I not only participated in many important courses, academic conferences, farm reviews, but also published some important papers. I greatly improved my language skills, and soil science skills and thus expanded my knowledge on soil quality improvement in the future.

2020 is an unique year: the outbreak of COVID-19 has become a serious challenge for people all over the world. During these unusual period, I tried to avoid going out, but concentrated on analyzing data, reading literatures and revising papers at home. I often chat with my family through wechat to keep them them from worrying. After arriving in China, I did the COVID-19 test first and went through nearly 20 days of isolation. The staff in the hotel served us enthusiastically, and put food, fruits, daily necessities, etc. at the door of my room on time. Meanwhile, we needed to report our body temperature to the staff every day. Two days before the end of the quarantine, I did a second COVID-19 test. Fortunately, both test results were negative, so I returned home smoothly.

At present, there are almost no new infections daily, and people's lives have returned to normal in China. Even so, the government's prevention and control measures for the COVID-19 are still very strict to prevent the virus from spreading again. I sincerely hope that all parts of the world will overcome the COVID-19 as soon as possible.

In the next few months, I will participate in the PhD defense, hold weddings (I would like to share a picture of me and my fiancee at OSU), and look for jobs. I will actively share my status with my colleagues at C-MASC. Hope that everything goes fine!

C-MASC Visiting Scholars Yingde Xu and Xiaodan Gao

An extra special

CONGRATULATIONS!

to C-MASC Visiting Scholars Yingde Xu and Xiaodan Gao on their engagement! We wish you all the best and look forward to hearing more about your happy future together!

C-MASC Departures

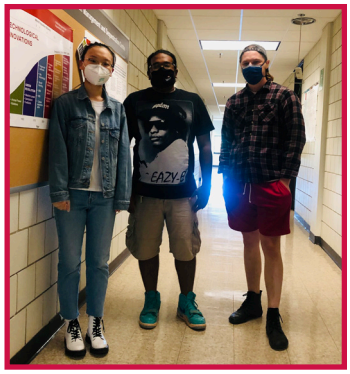
Hao Su

I am Hao Su, a visiting scholar from Zhejiang university, China. I completed my studies at Carbon Management and Sequestration Center (C-MASC) with China Scholarship Council (CSC) scholarship from September 29, 2019 to September 28, 2020 under supervision of Dr. Lal. It was such an honor for me to join C-MASC family, especially during the COVID-19 pandemic lockdown. I really enjoyed working with this amazing team.

During my visit to C-MASC, I joined the classes, lectures and seminars in person during first half of the year. While the COVID-19 pandemic has disrupted everyone's lives and studies, I was able to participate in online Zoom seminars and meet my colleagues virtually. All the members of C-MASC really care about each other and worked together online during this special time.

Studying in OSU really broadened my academic horizons, consolidated my knowledge, and increased my research skills such as GIS, calculation and writing skills. I continued my research focus on cropland system health and land management at C-MASC. I appreciate the comments and concerns from Dr. Lal which really help me. I learned a lot from Dr. Lal, not only on academic horizon, but also from his hard working personality.

This was a very helpful and unforgettable experience. I'm very thankful to Dr.Lal for accepting me on the C-MASC. I am also grateful to meet such nice colleagues in this team. I'd like to extend my thanks to entire C-MASC team. Wish all of you to be safe and healthy.



Manjeet Kaur

I am Manjeet Kaur, PhD Scholar in the department of Soil Science at Punjab Agricultural University (PAU), Ludhiana, India. At PAU, I am working on "Quantification of greenhouse gas emissions under different management practices in rice-wheat system" under the supervision of Dr. G.S. Dheri.

I was a visiting scholar at Carbon Management and Sequestration Centre (C-MASC) from March 13, 2020 to July 17, 2020 under the supervision of Dr. Rattan Lal. My visit was sponsored by the "ICAR-NAHEP-CAAST project on Natural Resources management for Sustainable Agriculture" and PAU, Ludhiana. During my time at OSU, I worked under the theme 'Management of soil carbon and greenhouse gas emissions'. I also attended virtual classes of Dr. Lal and C-MASC weekly seminars. The training improved my skills and level of understanding in regard to soil carbon and agricultural greenhouse gas emissions. Working at an amazing institute with friendly environment was great and unforgettable experience. I gained many friends during my training and I am hoping to continue this friendship.

I am extremely grateful to Dr. Lal, the hard working, kind-hearted and humble personality, for his valuable guidance, support and for making me a part of C-MASC family. Beside COVID-19, he managed to make my visit successful. I extend my thanks towards the whole C-MASC team, especially Maggie, Kyle and Nall for all your help and support.

I wish you all great health, happiness and prosperity.

C-MASC Departures

Gurmeet Singh Dheri

I, Gurmeet Singh Dheri was a Visiting Scholar at Carbon Management and Sequestration Centre (C-MASC) from 16 March to 13 September 2020 under the supervision of Dr Rattan Lal. My training at The Ohio State University was sponsored by Indian Council of Agricultural Research (ICAR) funded project of National Agricultural Higher Education Project (NAHEP) on Centre of Advanced Agricultural Science and Technologies (CAAST) operating at Punjab Agricultural University, Punjab, India.

The objectives of my training at OSU were to acquire training on the advance methodology and technologies for the estimation of soil carbon sequestration and greenhouse gas emissions in the agriculture sector. In the initial days of my training period, all activities went virtually due to COVID 19 epidemic. I attended the Zoom classes of 5261: Environmental Soil Physics and 5268: Soils and Climate Change taught by Dr Lal. I also got the opportunity to present a seminar in the seminar series conducted by C-MASC. Dr Lal has kindly arranged the presentations of various eminent scientists on soil carbon management and climate change. I was also educated by the Office of International Affairs (OIA), OSU about different opportunities available for the international students.

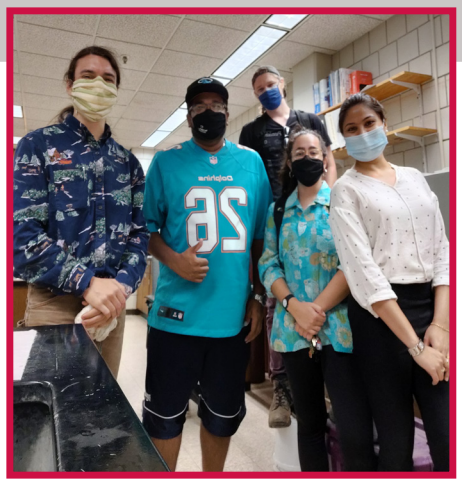
After getting partial permission to work in fields and labs, I started my work to study the effects of biofuel crops on soil carbon and greenhouse gas emissions from eight years old experiments at Waterman Fields. It was found that the method of straw management has considerable impact on soil air compositions and GHG emissions under corn cultivation. Methane emissions were highest under straw buried treatment compared to straw retain on the soil surface as a mulch. Selection of straw management technologies having low C emissions have potential to minimize the global warming potential of corn.

I express my sincere thanks and regards to my advisor, Dr Rattan Lal, for providing me with the opportunity to visit C-MASC and for all the guidance, encouragement, lessons, and personal care I have received during my training at OSU. I am thankful to Dr Lal for inviting me in his special presentations organized by various institutions, university, and World Food Prize Organization. Special thanks are also due to C-MASC for having me in facilitation functions conducted by various institutions especially by Punjab Agricultural University in the honour of Dr Rattan Lal.

The support and help provided by Maggie, Kyle and Nall were unmatched and made my stay memorable and comfortable at OSU. I thank Dr Klaus and other Visiting Scholars of C-MASC for their interactions and knowledge exchange. I am looking forwards for more collaborations with C-MASC shortly.

Karabi Pathak

I arrived at Columbus during the fall of 2019 with a lot of optimism and joy. And from the moment of my arrival I was overwhelmed by the support and affection I received from the C-MASC family. I still remember how Professor Lal went an extra mile to help me settle in a new country. Over the course of my stay, I met brilliant scholars from around the world with whom I had a great time. I am departing Columbus with great new knowledge about Regenerative Agriculture and an understanding how solutions to number of pressing problems — like hunger and poverty— lie in soil. Listening to Professor Lal's lecture was always a treat; and exploring the social life in Columbus and visiting other cities were equally enriching and a joyous experience.



C-MASC Departures

Vladimir Ivezic

During the spring 2020 I had the pleasure of joining the C-MASC Visiting Scholar team as a Fulbright Postdoctoral Researcher. Unfortunately my visit was interrupted by the Covid-19 pandemic which limited my research possibilities. However, the CMASC staff, led by Prof. Lal, made this unusual time more effective than I could ever imagine. Zoom meetings and seminars held twice a week made me not to lose contact with my academic work. Furthermore, through zoom meetings we were able to hear from scientists worldwide which probably wouldn't be the case otherwise. All of this made me stay till the end of my Fulbright scholarship, although I was offered an earlier return by the Fulbright organization. When the pandemic eased up a bit in June, I was able to go to C-MASC field trials and learn new methods for field GHG emissions, methods that I haven't used before. All of the gained knowledge I will be able to use back at my home institution Faculty of Agrobiotechnical Sciences in Osijek, Croatia where I will incorporate new methods in my research and new knowledge into my teaching. I am very thankful to Prof Lal and his team for inviting me and giving me the opportunity of a lifetime. Thank you!

Mah-Noor Azad

I am Mah-Noor Azad, Ph.D. scholar at PMAS-Agri Culture University Rawalpindi, Pakistan and Councilor of of the Soil Science Society of Pakistan from 2018. I was a Visiting Scholar at C-MASC from the 29th of February to the 4th of August with founder and Director, Professor Rattan Lal, and I appreciate the way Dr. Lal helped me. I worked on gaseous emissions and fractionation during my six-month visit. I found C-MASC to be a very helpful and attractive department. Dr Lal's team was very kind and helpful with me. I thank everyone I met there and worked with. I wish that I'll get another chance to work with them. It was an honor for me; I will remember those days I spent there and will maintain contact with all my colleagues.

C-MASC Scholar Viewpoint

FROM THE DESK OF KARABI PATHAK, THE FULBRIGHTER

Soil erosion occurs naturally under all climatic conditions and on all continents. However, it is significantly increased and accelerated by unsustainable human activities through intensive agriculture, deforestation, overgrazing, and improper land-use changes. Soil erosion rates are much higher than soil formation rates, meaning its loss and degradation is not recoverable within a human lifespan. Land-use conversion from native forests to agricultural land has aggravated the degradation process by degrading soil structure and accelerating erosion. Reducing the magnitude and intensity of soil physical disturbance in agricultural soils through appropriate management options may deaccelerate the soil degradation process. Soil is the elixir of life. It is the provider of food, moderator of climate, filter and reservoir of renewable water, habitat for germplasm, the inspiration for aesthetic and spiritual activities, source of pharmaceuticals and other materials, achieve of planetary and human history as mentioned by Prof. Rattan Lal, the 2020 World Food Prize Laureate and former President, International Union of Soil Science. Soil is the nature-based solution that addresses the challenges of the 21st century; the challenges include world food security, climate crisis, and sustainable livelihood development.

My studies at C-MASC, The Ohio State University, Columbus aims developing soil saving techniques. During my stay, I enjoyed visiting the world's oldest no-till farm plot that had been established at the Wester Agricultural Research Station, South Charleston, Ohio, for soil sampling for my post-doctoral research work. I studied the long-term tillage practices in soil erosion and soil organic carbon management. Three sites of different land use types/tillage practices, i) no-till corn (*Zea may*s L.), ii) plow till corn, and iii) native forest, were selected at the Western Agricultural Research Station, South Charleston, Ohio, USA. This study's objective was to assess the impact of NT farming on water infiltration, soil loss, and soil organic carbon and total nitrogen contents. My study suggests long-term land management of PT agricultural land under no-tillage improves soil organic carbon, total nitrogen, soil hydraulic conductivity, and water infiltration capacity than that under PT. I extensively performed the rainfall simulation to measure soil erosion and associated carbon loss from soil.

Apart from my research journey to Columbus, visiting great cities including Washington DC, New York, Chicago gave me a sense of America's multiculturalism, diversity and the cherished values of democracy and freedom. Coming from India, a country with diverse cultures, I was able to appreciate the shared values and aspirations of the two nations for the betterment of humankind.

My C-MASC experience was very productive; it enriched my scientific temperament and knowledge, which I am keen to apply for research in India. In that context, I would like to pay my gratitude and thanks to Dr. Lal and C-MASC, The Ohio State University, Columbus. for the support during my stay.

I remain thankful to the US-India Education Foundation (Fulbright Commission), Government of India and US Department of States for showing confidence in me and giving me this splendid opportunity to drive the cutting-edge research Under Fulbright-Kalam Climate Program.

Sincerely,

Karabi Pathak

Dr. Karabi Pathak
Fulbright Climate Scholar
Postdoctoral Researcher
United States-India Education Foundation, New Delhi

C-MASC Notable Events

IICA Chair in Soil Science and Goodwill Ambassador

IICA Deputy Director Lloyd Day (left) and IICA Director General Manuel Otero (right) present Dr. Lal with a certificate in the virtual ceremony.

Excerpt from IICA Announcement:

Scientist Rattan Lal, winner of the Nobel Peace Prize and the World Food Prize 2020, has been awarded the title of Goodwill Ambassador of the Inter-American Institute for Cooperation on Agriculture (IICA) in sustainable development issues, and was awarded the title of IICA Chair in Soil Science, due to his contribution to and research in protecting the health of this resource, essential for agriculture, food security and the health of all living beings.

The distinctions were awarded by IICA's Director General, Manuel Otero along with Deputy Director Lloyd Day in a virtual ceremony featuring the participation of the Ministers de Agriculture from Barbados, Indar Weir; from Chile, Antonio Walker; from Costa Rica, Renato Alvarado; and the administrator of the USDA Foreign Agricultural Service, Ken Isley, on behalf of the Secretary of Agriculture of the United States, Sonny Perdue, Gil Latz, Vice Provost for Global Strategies and International Affairs of Ohio State University; Barbara Stinson, president of the World Food Prize Foundation; and Kip Tom, US Ambassador to the UN Agencies in Rome, also participated in the meeting.

Dr. Rattan Lal Laboratories at Punjab Agricultural University

Dr. Lal attends the naming ceremony virtually for Dr. Rattan Lal Laboratories at Punjab Agricultural University

Dr. Lal experienced one of the honors of his lifetime when he attended the naming of the Department of Agronomy building as Dr. Rattan Lal Laboratories at his alma mater Punjab Agricultural University (PAU). Held on September 5th, which is Teacher's Day for Dr. Sarvapaulli Radhakrishnam in India and also the recorded date of Dr. Lal's birthday, the ceremony featured the esteemed Dr. B.S. Dhillon, Honorable Vice Chancellor, Dr. M.S. Bhullar, Head of the Department of Agronomy, Dr. O.P. Choudhary, Head of the Department of Soil Science, and Dr. N.S. Bains, Director of Research from the PAU side, and from The Ohio State Univeristy, President Kristina Johnson took time out of her busy first week as President to join the virtual call and give remarks, along with Vice Provost Gil Latz from the Office of International Affairs and Dr. Luis Canas of International Programs in Agriculture.

In this lovely ceremony, Dr. Lal watched as the building title was revealed and spoke with great gratitude. He cannot wait until he may visit and thank all involved in person.

Vice Chancellor Dr. B. S. Dhillon speaks at the naming ceremony with virtual guests Dr. Luis Canas, Dr. Rattan Lal and OSU President Kristina Johnson.

C-MASC Celebrates World Food Day

Dr. Lal's message for World Food Day on Friday, October 16th:

Food is the most basic of all human rights. Yet, almost 700 million people globally are food insecure, and an additional 80-130 million may become prone to hunger through the pandemic crisis. The problem of food insecurity is not just in some distant far away corners of the world: as many as 40 million in the U.S., and 1.7 million in Ohio, are food insecure, of which 0.5 million are children. Even one child going to bed hungry is one too many. The problem is often related to accessibility to nutritious and safe food. Thus, strengthening of the local food production systems; by promoting home gardens, community gardens, and urban and peri-urban agriculture; is critical to enhancing access to fresh and healthy food during the pandemic crisis.

As Mahatma Gandhi said: "There are people in the world so hungry, that God cannot appear to them except in the form of bread."

Quarterly Publications

Invited Keynote Speeches and Panels

- Lal, R. 2020. Environmental Issues and the Green Revolution in India. FIA-Ohio Exclusive Live Session with Dr. Lal. 20th June 2020. Federation of Indian Associations (FIA) in Ohio. Columbus, OH, USA. Online.
- Lal, R. 2020. Soil Carbon and Agricultural Production. Webinar at Mahatma Ghandi University. 6th July 2020. Mahatma Ghandi University, Kottyam, Kerala, India. Online.
- Lal, R. 2020. Soil Health and Eco-Agriculture for Food and Environmental Security in India. Agriculture Today Group: E-Conclave on Eco Agriculture Revolution. 8th July 2020. Agriculture Today, New Dehli, India. Online. Article available: http://www.agriculturetoday.in/magazine/2020/magazine-aug-2020.pdf
- Lal, R. 2020. Managing Soil Health for Sustainable Food and Agriculture in India. Amity Food and Agriculture Foundation Webinar Series. 10th July 2020. Amity Univeristy, Uttar Pradesh, India. Online. Available: https://www.youtube.com/watch?v=2OTBL2QYQoA&feature=youtu.be
- Lal, R. 2020. Soil and Sustainable Development. TEDx pause ... COUNTDOWN 2020. Session #2 Food. 15th July 2020. TEDx Vail, Vail, Colorado, USA. Online.
- Lal, R. 2020. IICA Award Ceremony. Conferral of the IICA Chair and Goodwill Ambassador Titles on Professor Rattan Lal. 17th July 2020. Inter-American Institute for Cooperation on Agriculture, San José, Costa Rica. Online. Available: https://www.facebook.com/IICAnoticias/videos/2619926941442189/?__so__=channel_tab&__rv__=all_videos_card
- Lal, R. 2020. Tenets of Climate Resilient Agriculture in Drylands. Online Policy Dialogue on Development of Climate-Resilient Agriculture. 21st July 2020. PMAS-AAUR: Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan. Recorded. Available: https://go.osu.edu/pmas-aaur

Invited Keynote Speeches and Panels

- Lal, R. 2020. Soil Science in Sustainable Food Systems Beyond COVID-19. Felicitation Program for Dr. Rattan Lal. 21st July 2020. Indian Institute of Soil Science (IISS-ICAR), National Academy of Agricultural Sciences, Indian Society of Soil Science, Bhopal, Madhya Pradesh, India. Online.
- Lal, R. 2020. The Climate Crisis and Its Solutions: Question and Answer Session #1. 22nd July 2020. Climate Reality Leadership Corps: Global Training. Climate Reality Project. Washington, DC, USA. Panelist. Recorded.
- Lal, R. 2020. Achieving Zero Net Land Degradation by 2030 in Developing Countries. Achieving Land Degrdation Neutrality. 22nd July 2020. Indian Association of Soil and Water Conservationists (IASWC), Indiant Institute of Soil and Water Conservation (ICAR), Indian Council of Forestry Research and Education, Dehradun, India. Online.
- Lal, R. 2020. Status and challenges of global soil carbon sequestration. 24th July 2020. Food and Agricultural Organization of the United Nations (FAO). Rome, Italy. Online. Panelist.
- Lal, R. 2020. Conservation to Sequester Carbon. Expanding Horizons: Where Conservation Meets Innovation. SWCS 75th International Annual Conference. 28th July 2020. Soil and Water Conservation Society, Ankey, Iowa, USA. Online.
- Lal, R. 2020. Can Farming Help Stop Climate Change? Patagonia Action Works. 29th July 2020. Regenerative Organic Patagonia UK Media Event Launch. London, UK. Panelist. Online.
- Lal, R. 2020. Sustainable Management of Finite Soil Resources. Sustainable Agriculture and Natural Climate Solutions. 30th July 2020. Evangelical Environmental Network, New Freedom, Pennslyvania, USA. Online.
- Lal, R. 2020. We Have a Growing Problem. 6th August 2020. Patagonia. Panelist. Online.
- Lal, R. 2020. Soil-Centric Approach to Realize India's Ever-Green Revolution. Virtual Consultation Science for Resilient Food, Nutrition, and Livelihoods: Contemporary Challenges. 7th August 2020. M.S. Swaminathan Research Foundation (MSSRF). Online. Available: https://www.mssrf.org/content/session-3-special-lecture
- Lal, R. 2020. Long-term Experiments for Assessing Soil Carbon Sequestration. Endowment Lecture, School of Post Graduate Studies. 14th August 2020. Tamil Nadu Agricultural University, Coimbatore, India. Online.
- Lal, R. 2020. Making Soil Health a Food Systems Priority. Emerging Leaders in Food & Ag Awards and Conference. 18th August 2020. USA. Online.
- Lal, R. 2020. Soil-Centric Green Revolution: A Paradigm Shift. Felicitation Program & Webinar. 19th August 2020. Punjab Agricultural University, Ludhiana, India. Online.
- Lal, R. 2020. The importance of soil in the future of humanity. Always Alive, Always Green: XVIII Aapresid Virtual Congress. 24th August 2020. Argentine No-Till Farmers Association (AAPRESID), Santa Fe, Argentina. Online.
- Lal, R. 2020. Fireside Chat with Sally Rockey at the Ag Innovation Showcase. 27th August 2020. Larta
- Lal, R. Food Production Systems to Sequester Soil Carbon and Offset Emissions. Monday Nutrition and Global Health Seminar Series. 31st August 2020. T.H. Chan School of Public Health, Harvard University, Cambridge, Massachusetts, USA. Online.
- Lal, R. 2020. Soil health and soil organic matter as cornerstone of sustainable intensification challenges. Building the Second African Fertilizer Summit Agenda. 7th September 2020. African Green Revolution Forum (AGRF) with Michigan State University, Detroit, Michigan, USA.
- Lal, R. 2020. Soil Carbon and Its In-Situ Measurement on Landscape. Azure Global Guest Speaker Series. 10th September 2020. Microsoft, Seattle, Washington, USA.

Invited Keynote Speeches and Panels

- Lal, R. 2020. Soil Survey and Land Use Planning for Realizing Sustainable Development Goals of the United Nations. Felicitation to World Food Prize Laureate. 11th September 2020. Indian Society of Soil Survey and Land Use Planning (ISSLUP), Nagpur, Maharashtra, India. Online.
- Lal, R. 2020. Climate-Resilient Agriculture for Sustainable Management of Natural Resources and Advancing Agenda 2030 of the United Nations. Resource Management and Biodiversity Conservation to Achieve Sustainable Development Goals. 12th September 2020. Academy of Natural Resource Conservation and Management (ANRCM), Lucknow, Uttar Pradesh, India. Online.
- Lal, R. 2020. Soil Management for Food and Climate. Rotary Club: Virtual Meeting - Guest Speaker Series. 16th September 2020. Dublin/Worthington Rotary Club, Dublin, Ohio, USA. Online. Available: https://www.youtube.com/watch?v=BfvVPZ8I0kY&ab_channel=DWRotary
- Lal, R. 2020. Regenerative Food Production and the Rights of Soils. Resilience Lab on Regenerative Food. Part III Virtual Lab: "Transforming sectoral approaches to sustain long-term regenerative resilience." Pathways 6, 7, 8. 17th September 2020. UNFCCC: Resilience Frontiers Initiative, Rome, Italy. Online.
- Lal, R. 2020. Realizing Sustainable Development Goals by Regenerative Agriculture and Soil Organic Matter Management. Good Growth Plan. 23rd September 2020. Syngenta Group with IICA, Uberlândia, Brazil, San José, Costa Rica. Online. Available: https://ggp2020.com/en/
- Lal, R. 2020. Sustainable Soil Management in Drylands of Rajsthan, India. International Webinar on Soils for Food and Climate. 28th September, 2020. Maharana Pratap University of Agriculture and Technology, Udaipur, Rajashtan, India. Online.
- Lal, R. Soil: The Essence of Life on Our Planet. 30th Annual Online Organics Recycling Conference. 30th September, 2020. IICA Canada and Compost Council of Canada. Online.
- Lal, R. Forgetting How to Tend the Soil. IUBS Centenary Webinar Series: Lecture 1. 2nd October, 2020. International Union of Biological Sciences (IUBS), Paris, France. Online. Available: https://council.science/events/rattan-lal/
- Lal, R. 2020. Urbanization and Rights-of-Soil. 5th Urban Soils Symposium and Expo: Soils - The Living Fabric of Health. 2nd October 2020. NYC Urban Soils Institute with RUDN University, Moscow, Russia, and TreePeople, LA. New York, New York, USA. Online.
- Lal, R. 2020. Strengthening agricultural curricula in India. Inaugural Address for 111th Foundation Course (FOCARS). 5th October 2020. National Academy of Agricultural Research Management (NAARM) and Indian Council of Agricultural Research (ICAR), Hyderabad, India. Online.
- Lal, R. 2020. Translating Science into Action with the Honorable Al Gore and World Food Prize President Barbara Stinson. 12th October 2020. World Food Prize, Des Moines, Iowa, USA. Panelist. Online. Available:
- Lal, R. 2020. Carbon Sequestration, Sustainability in Agriculture and the Rise of Carbon Markets. Roundtable 1: Climate Change. 12th October 2020. World Food Prize, Des Moines, Iowa, USA. Panelist. Online.
- Lal, R. 2020. Carbon Farming for Food and Climate Security: Producing More from Less. Iowa State University Norman Borlaug Lecture. 12th October 2020. World Food Prize and Iowa State, Ames, Iowa, USA. Online. Available:
- Lal, R. 2020. Global Youth Institute. 13th October 2020. World Food Prize, Des Moines, Iowa, USA. Panelist. Online.

Invited Keynote Speeches and Panels

- Lal, R. 2020. Priming Africa's Agriculture. World Food Prize Side Event - Toward Sustainable Agriculture Productivity Soil Health, and Resilience in Africa: An agenda for research and action. 13th October 2020. African Green Revolution Forum (AGRF) with Michigan State University at the World Food Prize, Des Moines, Iowa, USA. Online.
- Lal, R. 2020. Soil Health and Food Security in Sub-Saharan Africa. World Food Prize Side Event - Scaling Soils Restoration: Developing a Roadmap to Action. 15th October 2020. Catholic Relief Services (CRS) with The Chicago Council on Global Affrairs (TCCGA) with Colorado State University (CSU) at the World Food Prize, Des Moines, Iowa, USA. Online.
- Lal, R. 2020. Resilient and Sustainable Food Systems for Achieving Global Food and Nutrition Security. World Food Prize Side Event - Building More Resilient and Sustainable Food Systems for Improved Global Food Security and Nutrition. 15th October 2020. Food and Agriculture Organization of the United Nations (FAO) North America and the Alliance to End Hunger at the World Food Prize, Des Moines, Iowa, USA. Online.
- Lal, R. 2020. Sustainable Intensification of Agriculture in Pakistan. World Food Day Webinar: Grow Nourish & Sustain Together. 16th October 2020. Organisation of Islamic Cooperation's Standing Committee on Scientific and Technological Cooperation (COMSTECH) in association with UK-Pakistan Science and Innovation Global Network (UPSIGN) and Pakistan Adminstrative Service (PAS). Online.
- Lal, R. 2020. Managing Soil Health for Food and Climate in Central Asia. Food Security: National and Global Drivers. 17th October 2020. Samarkand State University with the Food and Agriculture Organization (FAO) and the International Centre for Agricultural Research in the Dry Areas (ICARDA). Recorded.
- Lal, R. 2020. Regenerative agriculture for food and climate security. Virtual Summit on Resilient and Regenerative Food Systems. 19th October 2020. Sri Lanka Youth Climate Action Network (SYLCAN) Trust. Colombo, Sri Lanka. Online.
- Lal, R. 2020. Adaptation and mitigation of climate change through soil-centric approaches. Inaugural Address for Ten Days Training Program on "Climate Risk Assesment and its Management through Agrometeorological Approaches." 21st October 2020. Dryland Agriculture Research Station (DARS), Rangreth and Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (SKAUST), Kashmir. Online.
- Lal, R. 2020. Inspiring Climate Action: What Can You(th) Do? 21st October 2020. Global Youth Institute, World Food Prize, Des Moines, Iowa, USA. Panelist. Online.
- Lal, R. 2020. Farming soils rather than crops and animals. 27th October 2020. Presentation to World Bank Affiliates. Online.
- Lal, R. 2020. Managing Soils of Agro-ecosystems for Adaptation to Extreme Weather Events. Day 8 of Ten Days Training Program on "Climate Risk Assesment and its Management through Agrometeorological Approaches." 28th October 2020. Dryland Agriculture Research Station (DARS), Rangreth and Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (SKAUST), Kashmir. Online.
- Lal, R. 2020. Innovative Agriculture Methods to Cater to a Changing Climate in Africa. 30th October 2020. Virtual DAAD climapAfrica Conference. Day Two. Online.

Please look to our Winter Newsletter for details about selected keynote speeches that Dr. Lal has given from July 2020 to December 2020

Refereed Journal Articles

- Aishwath, O.P. and R. Lal. 2020. Soil Compaction and wetness effects on efflux of greenhouse gases. J. Soil Water Conserv. 19 (3): 244-253. DOI: 10.5958/2455-7145.2020.00033.86.
- Al-Kaisi, Madhi M. and R. Lal. 2020. Aligning Science and Policy of Regenerative Agriculture. Soil Science Society of America Journal. DOI:10.1002/saj2.20162
- Babu, S., K.P. Mohapatra, G.S. Yadav, R. Lal, R. Singh, R.K. Avasthe, A. Das, P. Chandra, B.A. Gudade, and A. Kumar. 2020. Soil Carbon Dynamics in Diverse Organic Land Use Systems in North Eastern Himalayan Ecosystem of India. CATENA 194: 104785. http://www.sciencedirect.com/science/article/pii/S0341816220303350.
- Das, A, Layek, J, Idapuganti, RG, et al. Conservation tillage and residue management improves soil properties under a upland rice–rapeseed system in the subtropical eastern Himalayas. Land Degrad Dev. 2020; 31: 1775– 1791. https://doi.org/10.1002/ldr.356
- de Oliveira Ferreira, A., de Moraes Sá, J.C., Lal, R., Amado, T.J.C., Inagaki, T.M., Briedis, C. and Tivet, F. (2020), Can no-till restore soil organic carbon to levels under natural vegetation in a subtropical and tropical typic quartzipisamment? Land Degrad Dev. https://doi.org/10.1002/ldr.3822
- Kumar, R., Kumar, R., J.S. Mishraa, S. Mondal, R. S. Meena, P.K. Sundaram, B.P. Bhatt, R.S. Pan, R. Lal, K. Saurabh, N. Chandra, S.K. Samal, H. Hans, R.K. Ramana. 2020. Designing an ecofriendly and carbon-cum-energy efficient production system for the diverse agroecosystem of South Asia. Energy, 214 (2021): 118860. https://doi.org/10.1016/j.energy.2020.118860
- Lal, R. 2020. Integrating Animal Husbandry with Crops and Trees. Frontiers in Sustainable Food Systems 4: 113. https://www.frontiersin.org/article/10.3389/fsufs.2020.00113.
- Lal, R.; Brevik, E.C.; Dawson, L.; Field, D.; Glaser, B.; Hartemink, A.E.; Hatano, R.; Lascelles, B.; Monger, C.; Scholten, T.; Singh, B.R.; Spiegel, H.; Terribile, F.; Basile, A.; Zhang, Y.; Horn, R.; Kosaki, T.; Sánchez, L.B.R. Managing Soils for Recovering from the COVID-19 Pandemic. Soil Syst. 2020, 4, 46. DOI: 10.3390/soilsystems4030046
- Lal, R. 2020. Regenerative agriculture for food and climate. J. Soil Water Conserv. Aug 2020. DOI: 10.2489/jswc.2020.0620A
- Lal, R. 2020. The Role of Industry and the Private Sector in Promoting the 4 Per Thousand Initiative. Geoderma. 378 (15 November): 114613. https://doi.org/10.1016/j.geoderma.2020.114613
- Nawaz, Ahmad, M. Farooq, S. Ul-Allah, N. Gogoi, R. Lal, K.H.M. Siddique. 2020. Sustainable Soil Management for Food Security in South Asia. Journal of Soil and Plant Nutrition. Online: https://doi.org/10.1007/s42729-020-00358-z
- Ngangom B., Das A., Lal R., Idapuganti R.G., Layek J., Basavaraj S., Babu S., Yadav G.S. & Ghosh P.K., Double mulching improves soil properties and productivity of maize-based cropping system in eastern Indian Himalayas, International Soil and Water Conservation Research (2020), doi: https://doi.org/10.1016/j.iswcr.2020.07.001.
- Somasundaram, J., N. K. Sinha, Ram C. Dalal, Rattan Lal, M. Mohanty, A. K. Naorem, K. M. Hati, R. S. Chaudhary, A. K. Biswas, A. K. Patra & S. K. Chaudhari. 2020. No-Till Farming and Conservation Agriculture in South Asia – Issues, Challenges, Prospects and Benefits, Critical Reviews in Plant Sciences, 39:3, 236-279, DOI: 10.1080/07352689.2020.1782069
- Waqas, MA, Li, Y, Lal, R, et al. When does nutrient management sequester more carbon in soils and produce high and stable grain yields in China? Land Degrad Dev. 2020; 31: 1926-1941. https://doi.org/10.1002/ldr.3567
- Zhao, X, Liu, B-Y, Liu, S-L, et al. Sustaining crop production in China's cropland by crop residue retention: A meta-analysis. Land Degrad Dev. 2020; 31: 694–709 https://doi.org/10.1002/ldr.3492.

Students have cautiously returned to campus this fall, following testing, social distancing, and other safety guidelines.
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CONTACT INFORMATION

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

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