



University Alliance of Belt and Road Forum & International Plant Breeding Course (IPBC2019)

Lanzhou University, China

9th to 27th September, 2019

Associated organizations:

Lanzhou University

State Key Laboratory of Grassland Agro-ecosystems

Key Laboratory of Grassland Livestock Industry Innovation, MARA

The International Joint Research Center of Grassland Agro-ecology

➤ **IPBC 2019 in brief**

The 2019 International Plant Breeding Course (IPBC 2019) will be held at Lanzhou University, China, from the 9th to 27th September 2019. This course will be focused on the application of plant breeding theory together with quantitative genetic and molecular tools to improve the efficiency of cultivar development and delivery of outputs to the end user. The course will be conducted by experienced and internationally recognized scientists from USA, New Zealand, Italy, Kenya, Ireland and China.

Students attending the course represent eleven countries which include: China, Ethiopia, Gabon, Jordan, Kazakhstan, Nigeria, Pakistan, Rwanda, Serbia, Sierra Leone, and Sudan.

➤ **Organizing Committee**

Academic coordinators

1. Prof. Zhibiao Nan, zhibiao@lzu.edu.cn, Academician, Chinese Academy of Engineering; CPAST, Lanzhou University, China
2. Dr. John Caradus, john.caradus@grasslanz.com, Fellow of the Royal Society, CEO of Grasslanz Technology Ltd, New Zealand
3. Assoc. Prof. Zulfi Jahufer, Zulfi.Jahufer@agresearch.co.nz, AgResearch Grasslands Research Centre and Massey University, New Zealand; Tsuiying Chair Professor, Lanzhou University
4. Prof. Yanrong Wang, yrwang@lzu.edu.cn, CPAST, Lanzhou University, China
5. Prof. Jiyu Zhang, zhangjy@lzu.edu.cn, CPAST, Lanzhou University, China

Local Organizing Committee

1. Prof. Fujiang Hou, cyhoufj@lzu.edu.cn
2. Prof. Yanrong Wang, yrwang@lzu.edu.cn
3. Prof. Dawei Zhang, zhdawei@lzu.edu.cn
4. Prof. Chunjie Li, chunjie@lzu.edu.cn
5. Prof. Jiyu Zhang, zhangjy@lzu.edu.cn
6. Prof. Xiaowen Hu, huxw@lzu.edu.cn
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9. Mr Chengyong Fan, fchy@lzu.edu.cn
10. Ms Taiying He, hty@lzu.edu.cn
11. Assoc. Prof. Wengang Xie, xiewg@lzu.edu.cn
12. Assoc. Prof. Wenxian Liu, liuwx@lzu.edu.cn

➤ Time table

Week 1		
Dates	Session	Lecture/presentation
9/9/2019	o Registration	Dr Jiyu Zhang
10/9/2019	o Opening ceremony (Morning)	Invited University and government guests Keynote: The global situation and future of plant breeding: <i>Dr Mark Sorrells</i> Keynote: The role of CGIAR in forage plant breeding in developing countries: <i>Dr Chris Jones</i>
10/9/2019	o Lectures begin (Afternoon)	An introduction to plant breeding: <i>Dr Zulfi Jahufer</i> Opportunities for forage improvement through the ILRI genebank: <i>Chris J.</i> Breeding self-pollinating plants - Wheat: <i>Mark S.</i>
11/9/2019	o Lectures (Morning)	Application of molecular techniques : <i>Mark S.</i> Genetic improvement in tropical feed and forages: <i>Chris J., Dr Abel Gari Teshome</i>
11/9/2019	o Lectures (Afternoon)	Plant genetic resources: <i>Zulfi J.</i> Domestication and utilization of native plants I : <i>Dr Yanrong Wang</i> Statistics for plant breeders: <i>Zulfi J.</i>
12/9/2019	o Lectures (Morning)	Domestication and utilization of native plants II : <i>Yanrong W.</i> Quantitative Genetics - I: <i>Zulfi J.</i>
	o Lectures (Afternoon)	Quantitative Genetics - II : <i>Zulfi J.</i>
13/9/2019	o Lectures (Morning)	Plant breeding trial design: <i>Zulfi J.</i>
	o Lectures (Afternoon)	Advanced application I - Data analysis using DeltaGen: <i>Zulfi J. & Dr Dongwen Luo</i>

Week 2

Dates	Session	Lecture/presentation
16/9/2019	o Lectures (Morning)	Quantitative genetic analysis using DeltaGen: <i>Zulfi J.</i>
	o Lectures (Afternoon)	Advanced application II - Data analysis using DeltaGen: <i>Zulfi J. & Dongwen Luo</i>
17/9/2019	o Lectures (Morning)	Tutorials/discussion: <i>Zulfi J., Dongwen Luo, Jiyu Z.</i>
	o Lectures (Afternoon)	Plant breeding methods for cross & self-pollinating crops: <i>Zulfi J.</i>
18/9/2019	o Lectures (Morning)	Forage cultivar development in Europe: <i>Dr Paolo Annicchiarico.</i>
	o Lectures (Afternoon)	Breeding forage crops for stress environments: <i>Paolo A.</i>
19/9/2019	o Lectures (Morning)	Marker assisted breeding in Alfalfa: <i>Paolo A.</i>
	o Lectures (Afternoon)	Evolutionary and farmer-participatory breeding: <i>Paolo A.</i>
20/9/2019	o Lectures (Morning)	Genetic improvement of low seed shattering in forage grass: <i>Dr Wengang Xie</i>
	o Lectures (Afternoon)	Breeding for non-shattering common vetch (<i>Vicia satia</i> L.): <i>Dr Zhipeng Liu</i>
Saturday	Field trip	Genomics, metabolomics and transcriptomics in plant breeding: <i>Jiyu Z.</i>
		Advanced application III: Big data for breeding: <i>Jiyu Z.</i>
Sunday		Visit greenhouse, plant breeding trails, seed cleaning machinery in Yuzhong: <i>Jiyu Z., Zulfi J., Wengang X., Xiaowen Hu, Zhipeng L., Xueyang Min.</i>

Week 3

Dates	Session	Lecture/presentation
23/9/2019	o Lectures (Morning)	Introduction to molecular tools in plant breeding: <i>Dr Andrew Griffiths</i> Application of basic molecular techniques: <i>Andrew G.</i> Transgenics and cultivar development: <i>Dr Zengyu Wang</i>
	o Lectures (Afternoon)	Advanced application IV: molecular marker system and lab practice: <i>Andrew G. & Wengang X.</i>
24/9/2019	o Lectures (Morning)	Genome editing and cultivar development: <i>Zengyu W.</i> Genomic selection in plant breeding: <i>Andrew G.</i> Forage seed production and seed quality control- I : <i>Dr Phil Rolston</i>
	o Lectures (Afternoon)	Forage seed production and seed quality control- II : <i>Phil Rolston & Yanrong W.</i> Plant variety protection: <i>Dr John Caradus</i>
25/9/2019	o Lectures (Morning)	Application of quantitative genetics principles to maize breeding: <i>Dr Marcelo Carena</i>
	o Lectures (Afternoon)	Management of maize breeding programs based on quantitative traits-Lessons from 20 years integrating maize population improvement with cultivar development: <i>Dr Marcelo Carena</i>
26/9/2019	o Lectures (Morning)	Developing a path to market for added value cultivars: <i>John C.</i>
	o Lectures (Afternoon)	Discussion of plant breeding case studies and data analyses: <i>Zulfi J.</i>
27/9/2019	Final Day	Conclusion, Awarding of Certificate in Plant Breeding: <i>John C., Zulfi J., Jiyu Z.</i>

➤ **Course lecturers**

- 1. John Caradus**, Fellow of Royal Society of New Zealand, Senior Scientist, CEO Grasslanz Technology Ltd, New Zealand
- 2. Phil Rolston**, Former president of International Herbage Seed Group, Senior Scientist, AgResearch/ Foundation for Arable Research, New Zealand
- 3. Mark Sorrells**, Professor, Cornell University, USA
- 4. Zengyu Wang**, Former Senior Vice President of the Samuel Roberts Noble Foundation, USA; Dean, College of Agro-grassland Sciences, Qingdao Agricultural University, China
- 5. Zulfi Jahufer**, High-end foreign expert of the State Administration of Foreign Experts Affairs of China, “Tsuiying Chair Professor” at Lanzhou University; Senior Research Scientist, AgResearch and Assoc. Prof., Massey University, New Zealand
- 6. Chris Jones**, Team leader for feed and forage development, International Livestock Research Institute, Kenya
- 7. Marcelo Carena**, Science Team Leader, AgResearch, New Zealand
- 8. Paolo Annicchiarico**, Director of Research, Centre for Animal Production and Aquaculture, Italy
- 9. Andrew Griffiths**, Senior Research Scientist, AgResearch, New Zealand
- 10. Dongwen Luo**, Senior Research Scientist, AgResearch, New Zealand
- 11. Yanrong Wang**, Professor, Lanzhou University
- 12. Jiyu Zhang**, Professor, Lanzhou University
- 13. Zhipeng Liu**, Professor, Lanzhou University
- 14. Wengang Xie**, Associate Professor, Lanzhou University
- 15. Abel Teshome Gari**, Teagasc, Ireland

➤ **An introduction to the lecturers**

**1. Dr John Caradus, FRSNZ, HFNZIAHS, FASNZ
Grasslanz Technology Ltd**

John Caradus is Chief Executive of Grasslanz Technology Ltd, a fully owned subsidiary of AgResearch Ltd, based in New Zealand. Previously, John was CEO of Dexcel Ltd with responsibility for investment in industry good R&D and extension for the NZ dairy industry, and Science General Manager for AgResearch. John has a background in agricultural research with particular emphasis on plant breeding. He gained his PhD from the University of Reading (UK) in 1984.

John was elected Fellow of the Royal Society of New Zealand (RSNZ) in 2006 and is an Honorary Fellow New Zealand Institute Agricultural Science, and Fellow Agronomy Society New Zealand. John was elected a Life Member of NZ Grassland Association in 2018. He is a Past President of the New Zealand Institute of Agricultural Science, the New Zealand Grassland Association, and the New Zealand Plant Breeding and Research Association. He has served on the RSNZ Council and RSNZ Academy of Fellows. He currently chairs the NZ Grassland Trust that grants study scholarships and recognises excellence by way of farming and industry awards to encourage, promote and foster the advancement of grassland farming.

John has authored more than 260 science journal papers, conference papers and book chapters; and has bred 16 white clover cultivars that have been sold in NZ, Australia, Europe and USA.

In his current role he has oversight of a team that manages investment into applied plant and microbe research that delivers technologies to benefit end use farmers. These are provided through a licensing process with companies that manufacture and market the technologies. Grasslanz Technology has a vision of creating value through unique plant opportunities.



2. Dr. Phil Rolston

Foundation for Arable Research, Christchurch, New Zealand

Phil Rolston received his Ph.D (1979) from Oregon State University. He has had more than 40 years involvement in seed production, especially of temperate herbage seeds with AgResearch (NZ forage research Institute) and since 2016 with the Foundation for Arable Research. He was President of the International Herbage Seed Group from 2015-2019. At Lincoln University he is an Adjunct-Professor and since 2000 he has co-taught a 300 level Seed Technology paper and helps runs an annual 12-day Seed Industry Short Course for seed industry staff. He had 15 years as a member of the New Zealand Seed Quality Management Authority, which is responsible for Seed Certification. His research interests cover agronomic management of seed crops, especially ryegrass, cocksfoot, tall fescue, white and red clover. He has undertaken about 100 international consultancies, including 67 visits to China in the area of forage/pasture agronomy and integration of livestock systems into cropping agriculture. In 2015 the Chinese Government awarded him the International Science and Technology Cooperation Award for his contributions to China R&D.



3. Prof. Mark E. Sorrells

Cornell University, USA

Mark Sorrells is a Professor of Plant Breeding and Genetics in the Plant Breeding and Genetics Department at Cornell University. He earned his B.S. in Botany in 1973 and M.S. in Plant and Soil Science in 1975 at Southern Illinois University, Carbondale, IL and his Ph.D. in Plant Breeding and Plant Genetics in 1978 at the University of Wisconsin, Madison. He joined the Department of Plant Breeding and Biometry in 1978 and has been full professor of plant breeding since 1991. Sorrells was Chair of the Department of Plant Breeding and Genetics from 2006 to 2014.

Sorrells has authored or co-authored more than 280 peer reviewed publications. He is a Fellow of the American Association for the Advancement of Science and the Crop Science Society of America and has been awarded the Crop Science Society of America Outstanding Research Award, and the Cornell College of Agriculture Outstanding Accomplishments in Applied Research award. He specializes in plant breeding methodologies and strategies and develops new varieties of wheat, oats, and barley. Recent research topics include genomic selection, hyperspectral imaging to predict wheat grain yield and inter-genomic gene interactions in wheat.



5. Prof. Zeng-Yu Wang

Qingdao Agriculture University, China

Zeng-Yu Wang received his Ph.D (1990) from Beijing Agricultural University. He completed a five-year postdoctoral appointment at Swiss Federal Institute of Technology, Zurich, Switzerland, in 1995, and then moved to Australia and served as a research scientist for three years at Agriculture Victoria, Melbourne. Zeng-Yu joined the Noble Foundation in March 1998 and rose through the ranks from Assistant Professor to Full Professor. He was promoted to Senior Vice President and Director of the Forage Improvement Division of the Noble Foundation in 2014. Recently he joined Qingdao Agriculture University as dean of School of Grassland Science from 2018.

His lab focuses on translational research for the improvement of forage grasses and legumes. The research areas include development of genetic transformation and genome editing methods, functional genomics, manipulation of plant growth and development, and improvement of abiotic stress tolerance.



6. Associate Prof. Zulfi Jahufer

AgResearch Grasslands Research Centre and Massey University, New Zealand

Zulfi has a MSc degree in Agronomy from the KUBAN Agrarian University in Russia and a PhD degree in Quantitative Genetics/Plant Breeding from The University of Queensland, Australia. Zulfi has broad international working experience in research and development; New Zealand, Australia, China, Vietnam, Portugal, Hungary, Sri Lanka. He has also coordinated plant breeding trials across Europe. Zulfi currently works at AgResearch Grasslands as a Senior Research Scientist in forage Quantitative Genetics and is also an Associate Professor in Plant Breeding at Massey University. Zulfi was recently awarded the academic title of “Tsuiying Chair Professor” at Lanzhou University.

In addition to his scientific publications, he has been associated with the development of several commercial forage grass and legume cultivars. He is a developer of the plant breeding digital software “DeltaGen”.

A key focus of his research has been studying the underlying genetics of forage plant persistence under moisture stress, a significant constraint associated with climate change.



7. Dr Chris Jones

International Livestock Research Institute, Kenya

Chris Jones is program leader for feed and forage development. His interests span the application of a broad range of modern biotechnologies with the aim of developing tools and delivering technologies to advance science and to provide solutions for the enhancement of the livestock sector. Chris leads a multidisciplinary research program with science capabilities involving a team of molecular biologists, plant pathologists, whole plant physiologists, livestock feed specialists, and, animal nutritionists. The program was established to take advantage of new scientific opportunities and leverage the genetic resources held in the ILRI forage genebank, a collection of nearly 19,000 accessions together with characterization and evaluation data, situated in Addis Ababa, Ethiopia.

Chris is a plant biotechnologist who gained his PhD in plant molecular biology from the University of Dundee in 2000. Originally from the UK Chris is a science leader with experience researching all aspects of plant biotechnology from academic to highly commercially driven projects.



8. Dr Marcelo J Carena

AgResearch Ltd, New Zealand

Dr. Marcelo J. Carena is the Science Team Leader for Forage Genetics at AgResearch Ltd in New Zealand (NZ). His scientific focus is on developing a national forage enhancement program for adaptation to climate changes and lower environmental footprint. Previously, Marcelo was the R&D Director and senior ryegrass breeder for DLF Seeds & Science Ltd with eight intellectual property awards as quality IP adviser for product development. Marcelo has been a plant breeder for almost 30 years.

Dr. Carena has a B.S. in Agronomy (1987-1991) from Argentina, a MS in Plant Breeding (1992-1995) from Europe, and a Ph.D. in Plant Breeding (1996-1999) from Iowa State University in the USA. From 1999 to 2017, Dr. Carena progressed through all academic ranks and, in 2011, became one of the youngest tenured full professors at 41 years of age at North Dakota State University (NDSU) where he led the NDSU maize breeding and genetics research program. During that time, Dr. Carena developed over 90 unique short-season germ plasm, lines, and hybrids and PVP awards with the help of NZ winter screening and production nurseries.

Marcelo has authored hundreds of peer-reviewed publications, books, book chapters, and conference papers, many as invited plenary lectures and awards. He has served as elected Chair and Secretary of many Committees, the United Nations, the European Association of Plant Breeders (EUCARPIA), the American Seed Trade Association (ASTA), the United States Department of Agriculture (USDA), the Advisory Committee for an AFRI Education program, and the American Societies of Crop Science and Agronomy.



9. Dr. Paolo Annicchiarico

Council for Agricultural Research and Economics (CREA), Italy

Education: PhD, Univ. of Wales, Aberystwyth, UK; MSc, Univ. of Perugia, Italy; postgraduate courses in Plant Genetic Resources and in Applied Statistics, Faculté des Sciences Agronomiques, Gembloux, Belgium.

Research positions: Research Associate at ICARDA, Aleppo, Syria (1985-1987); Scientist or Senior scientist from 1988, and Director of Research from 2002, at CREA in Lodi, Italy. Visiting scientist, Noble Foundation, Ardmore, OK (2012-2013).

Main research topics: breeding and genetic resources of forage legumes and feed grain legumes; stress tolerance (drought; low temperatures; plant competition; grazing); genomic selection; evolutionary and farmer-participatory breeding.

Main international projects: REFORMA (coordinator); REMIX, LIVESEED, INVITE (Horizon); LEGATO, PERMED (FP-7 or 6); COBRA (Core-Organic).

Publications: 2 books; over 260 scientific papers, including 104 on high impact factor journals (ISI classes Q1 or Q2). H-index: 33 (Google scholar).

Teaching: over 250 lecturing hours in international courses; past contract professor of ‘Statistical methods for agricultural sciences’, Univ. of Milan, Italy.

Breeder of registered or candidate varieties of alfalfa, white clover, pea, white lupin.

Current President of the International Legume Society.



10. Dr. Dongwen Luo

AgResearch Ltd, New Zealand

Dongwen Luo received his Ph.D (2003) from Massey University New Zealand. He completed a two-year postdoctoral appointment at Macquarie University Australia, in 2005, and then work at Fonterra Co-operative Group as a statistician for two years, now Dongwen Luo is a senior statistician at AgResearch NZ Ltd since 2008.

His work focuses on providing statistical consultant to the area of Forage Science, Animal Science and Land Environmental Science, and cooperating with other scientists to develop statistical software such as DeltaGen.



11. Prof. Yanrong Wang

Lanzhou University, China

Yanrong Wang, Professor in herbage germplasm and seeds science. Director of Institute of Herbage Plant Breeding and Seeds in College of Pastoral Agricultural Science and Technology, Lanzhou University. Executive deputy director of Herbage and Turf Grass Seed Testing Laboratory (Lanzhou), Ministry of Agriculture and Rural Affairs, China. She obtained a Master Degree of Agriculture Science in seed quality in Massey University New Zealand 1989, and PhD of Science in seed physiology in Nanjing Agriculture University China, 2003. She worked at Forage Gene Bank of International Livestock Research Institute for 3 years during 2004-2006. She is a board member of Forage Cultivar Registration Committee in Gansu Province, China. Member of Seed Vigour Committee of International Seed Testing Association, and Executive Committee Member of International Herbage Seed Group.

Her main research fields are seed science and technology, germplasm and plant breeding in herbage crops. She has developed 4 herbage new varieties including drought and cold tolerance varieties. Has draw and published 11 China National Rules in Herbage Seed Testing. She has published 6 books related to herbage germplasm evaluation, and more than 280 refereed research papers. She has obtained 4 prizes awarded by Ministry of Science and Technology, Gansu Provincial Government or Ministry of Agriculture in China for outstanding research achievements.



12. Prof. Jiyu Zhang

Lanzhou University, China

Jiyu Zhang is a professor of Plant Breeding and Biotechnology at the State Key Laboratory of Grassland Agro-ecosystems, College of Pastoral Agriculture Science and Technology at Lanzhou University.

He earned his Ph.D. in Forage Plant Molecular Biology in 2008 at the Lanzhou University. He joined the CPAST, Lanzhou University since 2003. He teaches Plant Breeding course for both undergraduates and postgraduates. He has worked as a visiting scientist in Victoria AgriBioscience Center (1/2007-1/2008, 10/2014-1/2015), AgResearch (5/2012-7/2012) and CIMMYT (3/2018).

His research is mainly focused on breeding for high yield and stress tolerance of forage grasses and legumes. An important objective in Jiyu's research is to understand the molecular genetic architecture of key agronomic traits using a combination of genomic, transcriptomic and metabolomic tools. He has authored and co-authored more than 70 peer reviewed publications. He is a review editor for *Frontiers in Plant Science* and also an editor of *Scientific Reports* journal. He is a board member of the Forage Cultivar Registration Committee for Gansu Province. He has developed one cultivar of *Cleistogenes songorica*, and several breeding lines of *Melilotus*, *Lespedeza*, alfalfa and *Onobrychis*.



13. Prof. Zhipeng Liu

Lanzhou University, China

Zhipeng Liu is a professor in the State Key Laboratory of Grassland Agro-ecosystems, College of Pastoral Agriculture Science and Technology, Lanzhou University. Zhipeng has a background in forage breeding with particular emphasis on alfalfa (*Medicago sativa*) and common vetch (*Vicia sativa*) using traditional and molecular methods.

Zhipeng gained his PhD in 2007 from Institute of Botany, Chinese Academy of Sciences, Beijing, China. He serves in several academic positions such as Secretary general of Steering Committee for Guidance in Teaching in Higher Educations Institutions in Grassland Science, China (2018-2022). He also serves on the editorial board of several journals such as *Frontiers in Plant Sciences*, *Chinese Journal of Grassland*, and *Pratacultural Science*.

The main achievements in common vetch are as follows: (1) Established and evaluated the largest 541 vetch germplasm resources in the world; (2) Bred two new low pod-shattering strains of vetch; (3) Identified firstly the unique structure "External Valve Margin Cells" involved in pod shattering in vetch; (4) Assembled the first draft genome of vetch. The main achievements in alfalfa are as follows: (1) Established the largest *Medicago* species germplasm resources in the world; (2) Developed of 204 novel EST-SSRs and use for genetic diversity analyses in alfalfa; (3) Established a alfalfa gene expression database on a large scale and transferred 30 candidate gene into alfalfa to improve drought tolerance.

Moreover, five National Natural Science Foundations of China were chaired including Outstanding Youth Science Foundation, and 66 publications were published. Among these papers, 27 SCI were published as the first or corresponding author. One SCI was selected as "1% ESI highly cited papers ". And twenty Chinese invention patents were applied or authorized.



14. Associate Prof. Wengang Xie
Lanzhou University, China

Wengang Xie is an associate professor of the State Key Laboratory of Grassland Agro-ecosystems, and College of Pastoral Agriculture Science and Technology, Lanzhou University. He earned his PhD degree in Grassland Science in 2012 at Sichuan Agricultural University, China. He studied forage breeding and genetics as a visiting scientist at Forage and Range Research Laboratory (FRRL), USDA during 2010-2012. He joined the forage breeding and seed science research group in Lanzhou University in 2013. He conducted China- New Zealand Scientist Exchange Program in 2018 at AgResearch, New Zealand.

His research mainly focus on forage grass breeding and genetics: He developed and used DNA markers to detect the genetic diversity, population structures, and agronomic potential of promising *Elymus sibiricus* and *E. nutans* collections. He also constructed mapping populations and association populations for *Elymus* grasses to dissect the complex traits of interest for seed shattering, flowering time, awn length and other related agronomic traits. His current study focus on identifying genetic and molecular mechanisms for seed shattering in *Elymus sibiricus*. He has authored or co-authored more than 30 peer reviewed publications.



16. Abel Gari Teshome, PhD

Teagasc, Ireland

Abel is a plant geneticist who gained his PhD in Plant Breeding from Swedish University of Agricultural Sciences in 2015. Originally from Ethiopia, at present, Abel is working at Teagasc on a research project aiming to develop a molecular marker assay for F1 hybrid seeds production in perennial ryegrass (*Lolium perenne* L.) at a commercial scale. Previously, Abel was a research officer at International Livestock Research Institute (ILRI), working towards developing genomic tools for orphan but traditional forage species in Easter Africa, Napier grass (*Pennisetum purpureum* L.).

He is passionate about teaching; building computational biology skills of scientists/researchers in Africa and involving in a research projects (improving crop performance with the application of state-of-art genomics tools). From October 2019, he will be joining John Innes centre (JIC) as Ethiopian Project Manager overseeing two key research projects; development of productive and disease resistant wheat varieties in East Africa and breeding grass pea varieties with a low level of beta-L-ODAP toxin.

➤ **IPBC 2019 will be funded by:**

- ✓ Belt & Road program, Ministry of Science and Technology, China
- ✓ University Alliance of Belt & Road
- ✓ 111 program (B12002)
- ✓ The International Joint Research Center of Grassland Agro-ecology
- ✓ Lanzhou University










中华人民共和国科学技术部
Ministry of Science and Technology of the People's Republic of China

















➤ **The organizers of IPBC 2019 wish to acknowledge**

Agresearch Ltd, New Zealand; Cornell University, USA; Gransslanz Ltd, New Zealand; Council for Agricultural Research and Economics, Italy; Foundation for Arable Research, New Zealand; International Livestock Research Institute, Kenya; Lanzhou University, China; Qingdao Agriculture University, China; Teagasc, Ireland, for supporting their staff to lecture at the course. This is a significant contribution from these organizations towards helping in the progress of Agriculture in developing countries.

➤ Weather forecasting in Lanzhou from 8th to 28th September 2019

<p>SUN 9/8</p>  <p>73° /58° 22.7°C /14.4°C Mostly cloudy</p> <p>Hist. Avg, 74°/54°</p>	<p>MON 9/9</p>  <p>78° /59° 25.5°C /15°C A touch of afternoon rain</p> <p>Hist. Avg, 74°/54°</p>	<p>TUE 9/10</p>  <p>74° /58° 23.3°C /14.4°C Mostly cloudy</p> <p>Hist. Avg, 73°/53°</p>	<p>WED 9/11</p>  <p>77° /56° 25°C /13.3°C Clouds and sun</p> <p>Hist. Avg, 73°/53°</p>	<p>THU 9/12</p>  <p>77° /57° 25°C /13.8°C Brilliant sunshine</p> <p>Hist. Avg, 73°/53°</p>	<p>FRI 9/13</p>  <p>76° /58° 24.4°C /14.4°C Times of clouds and sun</p> <p>Hist. Avg, 72°/52°</p>	<p>SAT 9/14</p>  <p>78° /59° 25.5°C /15°C Clouds giving way to some sun</p> <p>Hist. Avg, 72°/52°</p>
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<p>SUN 9/15</p>  <p>77° /58° 25°C /14.4°C Times of clouds and sun</p> <p>Hist. Avg, 72°/52°</p>	<p>MON 9/16</p>  <p>76° /57° 24.4°C /13.8°C Afternoon rain</p> <p>Hist. Avg, 71°/51°</p>	<p>TUE 9/17</p>  <p>74° /54° 23.3°C /12.2°C A little morning rain</p> <p>Hist. Avg, 71°/51°</p>	<p>WED 9/18</p>  <p>68° /49° 20°C /9.4°C Sunshine</p> <p>Hist. Avg, 71°/51°</p>	<p>THU 9/19</p>  <p>72° /48° 22°C /8.8°C Sunshine</p> <p>Hist. Avg, 70°/50°</p>	<p>FRI 9/20</p>  <p>74° /50° 23.3°C /10°C Considerable clouds</p> <p>Hist. Avg, 70°/50°</p>	<p>SAT 9/21</p>  <p>71° /49° 21.6°C /9.4°C Mainly cloudy</p> <p>Hist. Avg, 70°/50°</p>
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<p>SUN 9/22</p>  <p>70° /48° 21.1°C /8.8°C Brilliant sunshine</p> <p>Hist. Avg, 69°/49°</p>	<p>MON 9/23</p>  <p>74° /51° 23.3°C /10.5°C Sunny</p> <p>Hist. Avg, 69°/49°</p>	<p>TUE 9/24</p>  <p>75° /49° 23.8°C /9.4°C Partly sunny, a shower</p> <p>Hist. Avg, 69°/49°</p>	<p>WED 9/25</p>  <p>74° /49° 23.3°C /9.4°C Partly sunny</p> <p>Hist. Avg, 68°/48°</p>	<p>THU 9/26</p>  <p>74° /52° 23.3°C /11.1°C Sunny</p> <p>Hist. Avg, 68°/48°</p>	<p>FRI 9/27</p>  <p>75° /53° 23.8°C /11.6°C A p.m. shower in the area</p> <p>Hist. Avg, 68°/48°</p>	<p>SAT 9/28</p>  <p>73° /50° 22°C /10°C Overcast, a little rain</p> <p>Hist. Avg, 67°/47°</p>
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➤ **Map**

【Google】 Please click to this link (<https://goo.gl/maps/kh1r13bJv8rYZG9e8>) in Google Maps to See directions from:

- ✓ Civil Aviation Yunmeilv International Hotel to College of Pastoral Agriculture Science and Technology (Grassland Farming Science & Technology)
- ✓ College of Pastoral Agriculture Science and Technology (Grassland Farming Science & Technology) to Xinlin Building Restaurant
- ✓ Lanzhou University Medical College Xinlin Building to Xinzhu Yuan Building Restaurant

