

Ministry of Education Government of India



Global Initiative of Academic Networks



Aligarh Muslim University

International Workshop Complementing Current Techniques with Next Generation Technologies for Crop Health Improvement

14-19 November, 2022 (ON VIRTUAL MODE)

Sponsored by

Global Initiative of Academic Networks Ministry of Education Government of India, New Delhi

> COORDINATOR, GIAN COURSE Prof. Mujeebur Rahman Khan Department of Plant Protection, Faculty of Agricultural Sciences Aligarh Muslim University Aligarh-202002 (UP), INDIA Email: mrkhan.amu@gmail.com; Mob. 0091-9412527112



Prof. Mohamed F. R. Khan, NDSU, North Dakota and UOM, Minnesota,

USA (Foreign Expert)

Prof. Mohamed F. R. Khan is the Extension Sugarbeet Specialist for North Dakota State University and the University of Minnesota, USA. Prof. Khan received his BS from the University of Guyana; MS from the University of Bath, UK; and Ph.D. from Clemson University, USA. He is responsible for developing, conducting and evaluating educational programs to improve sugarbeet production practices in North Dakota and Minnesota. His research is aimed at improving management of diseases such as Cercospora leaf spot, Rhizoctonia crown and root rot, Rhizomania and Fusarium yellows, and agronomic practices such as optimum plant populations and nitrogen management.



Prof. Khan is the Secretary of the Sugarbeet Research and Education Board of Minnesota and North Dakota (SBREB). The SBREB is responsible for funding and promoting research and educational programs in sugarbeet production. Prof. Khan is also the Chairman of the International Sugarbeet Institute which organizes an annual two day trade show. About 3000 growers and allied industry personnel participate in the exposition of machinery and equipments involved in sugarbeet production. He is also experienced in managing tropical crops including coconut, oil palm and sugar cane.

Prof. Mujeebur Rahman Khan, Aligarh Muslim University (Coordinator)

Dr. Mujeebur Rahman Khan is a Professor at the Department of Plant Protection, Aligarh Muslim University, Aligarh, India, and Chairman of the department, and the former Dean, Faculty of Agricultural Sciences, AMU. Prof. Khan received his M.Sc. in 1984 and Ph.D. in 1988 in Plant Pathology and Nematology from the Aligarh Muslim University, India. He has worked as Post-Doc at the North Carolina State University, USA and the California Department of Food and Agriculture, USA, and also received advanced training in nematode identification at the Institute of Parasitology, Commonwealth Agricultural Bureau, UK. He has around 400 research publications, 18 books and 2 patents to his credit.



He has received research grant through ten projects funded by DST, DBT, UGC, CST-UP, Russell IPM etc. He has developed low cost technology for commercial production of microbial formulations and has developed biofertilizers and biopesticides for vegetable and pulse cropping systems. His research areas include plant-microbe interactions, microbial control of pathogenic plant fungi and nematodes, crop diseases under climate change, and nanoparticle-plant/microbe interactions.

Prof. Mohammad Jahangeer Warsi Local Coordinator, GIAN Department of Linguistics, Aligarh Muslim University



About GIAN

Global Initiative of Academic Networks (GIAN) in Higher Education was launched in 2015. It is a program of Ministry of Education, Government of India. GIAN in Higher Education is aimed at tapping the talent pool of international scientists and entrepreneurs to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence.

About Aligarh Muslim University

Aligarh Muslim University (AMU) is a central university and occupies an important position amongst universities and institutions of higher learning in India. It was established in 1920 by the Act of Parliament of India. The university was evolved out of the Mohammedan Anglo-Oriental (MAO) which was set up in 1877 by the great visionary and social reformer, Sir Syed Ahmad Khan. Since its inception, AMU has kept its door open to the members of all communities and from all corners of the country and the world. The University is open to all irrespective of caste, creed, religion or gender. AMU is among fifteen best Indian University ranked by the National Ranking Federation, and awarded A⁺ by the National Assessment and Accreditation Council. The University is spread over 467 hectares in the city of Aligarh, Uttar Pradesh. Aligarh Muslim University offers more than 300 courses in the traditional and modern branches of education. It has around 40000 students (including around 12000 residential students), 1,678 teachers and some 5,600 non-teaching staff on its rolls. The University has 13 faculties comprising 117 teaching departments, 3 academies, 21 centers/institutes, and 3 out side campuses.

About Department of Plant Protection

The Department of Plant Protection is one of the active departments under the Faculty of Agricultural Sciences. The department as Section of Plant Protection was started under the umbrella of Institute of Agriculture in 1993 with the vision to protect crop plants from pests and diseases and to enhance crop productivity through ecofriendly and sustainable management approaches. The section assumed the status of the Department of Plant Protection in 2000. Initially, the department offered M.Sc. (Agriculture) Plant Protection. However, in keeping pace with the advancement of science, need of famers and demand of market, the department currently offers M.Sc. (Ag.) Entomology, M.Sc. (Ag.) Plant Pathology and M.Sc. (Ag.) Nematology as well programmes Ph.D. in the respective disciplines.

Resource Persons

FOREIN FACULTY

Prof. Mohamed F. R. Khan

Professor and Extension Sugarbeet Specialist Department of Plant Pathology, North Dakota State University and University of Minnesota Minnesota, U.S.A.

HOST FACULTY

Prof. Mujeebur Rahman Khan Professor, FNAAS, FIPS, Plant Nematologist Department of Plant Protection Aligarh Muslim University Aligarh-202002 (UP), INDIA

GUEST SPEAKERS

Dr. Leng Yueqiang Department of Plant Pathology North Dakota State University Fargo, ND, USA Department of Plant Pathology North Dakota State University Fargo, ND, USA

Coordinator, GIAN Course Prof. Mujeebur Rahman Khan Department of Plant Protection Aligarh Muslim University Aligarh-202002 (UP), INDIA



Overview

The human population, at present in India, is 1.4 billion which is expected to reach 1.5 billion by 2025 and 1.7 billion by 2050. For this continuously burgeoning population, the country requires a proportionate increase in food production. In recent decades, the food production in the country has drastically increased to around 42% (food grains), 72% (oilseeds), 98% (vegetables) and 141% (fruit crops) in comparison to 2000, and has become self-sufficient in most of the food commodities. At present, India produces around 285 million tons food grains, but the food requirement shall increase by 20 and 40% by 2030 and 2050, respectively. Further, because of the population increase, the agricultural land resource has also gradually decreased because of building the houses, industries, highways etc. As a result, the agriculture acreage may further decrease considerably in the coming decades. Hence, crop productivity has to be increased by at least 15-25% to meet the food and fodder requirements of the increasing human and cattle populations in India. In many crops, productivity has plateaued, and a further increase in farm inputs does not give economic returns. Under this situation, the existing food production practices are needed to be revolutionized by exploiting and applying new generation technologies for plant health improvement to attain the food and fodder production targets. Microbial-formulations, genetically modified crops, improved germplasm, nanofertilizers and nanopesticides are the emerging new generation technologies which may help India as well other developing countries to enhance food production for meeting the challenges of food security and safety.

Objectives

By organizing the GIAN international workshop on New Generation Technologies for Crop Health Improvement, in collaboration with an expert from the United States of America, the following primary objectives are targeted to achieve:

- 1. Streamlining the use of new generation technologies in India for crop improvement.
- 2. Identifying appropriate microbial technologies for improving soil fertility.
- 3. Exploring and selecting indigenous and exotic microbial strains for tolerance against biotic and abiotic stresses.
- 4. Exploring and identifying new generation nanomaterials such as nanofertilizers and nanopesticides for reducing chemical inputs in crop production.

Secondary objectives

The following secondary objectives are interlinked with the primary objectives mentioned above and expected to be achieved.

- 1. The use of new generation microbial and nanotechnologies that may help in improving soil fertility and in attaining tolerance in crop plants against biotic and abiotic stresses.
- 2. Preventing soil and water contamination with fertilizers and pesticides by using new generation nanofertilizers and nanopesticides.



THE WORKSHOP SHALL BE ORGANIZED IN VIRTUAL MODE

Who can apply	?	Important dates		
 Executives, policymakers, and researchers from Government and non-government institutions. Faculty, researchers and student specializing in Agronomy, Horticulture, Plant Pathology, Entomology, Nematology, and other allied disciplines of Agriculture and Bioscience from academic and technical institutions. Apply on the format printed at the end. 		 Last date of receiving applications: 15 October, 2022. Declaration of selected candidates: 25 October, 2022 Submission of registration fee and confirmation of selected candidates: 05 November, 2022 Online link to the registered candidate: 10-12 November, 2022 		
Number of seats: 30*		Mode of Payment**		
Course Fee (for virtual mode)		For registration, course fee is to be transferred digitally in favor of the Coordinator, GIAN Course , Department of Plant Protection, Aligarh Muslim University, Aligarh, India on the following account details. Bank: Canara Bank		
Students Rs. 300				
Scientists, Teachers etc. Rs. 500				
Foreign Participants USD 10		Account No.:110069914428		

*Seats may be increased because of virtual mode. ** Certificates will be given to registered participants.

- The Zoom link to attend the workshop shall be shared with the registered candidates, one or two days before the workshop.
- The payment receipt must be forwarded to the Coordinator at: <u>mrkhan.amu@gmail.com</u>

Day-1



Lecture Schedule

14-19 November, 2022 (Duration of the Course: 6 Days)

		Monday, 14 November, 2022 <u>2.30 pm – 8.30 pm</u>	
	Inauguration (2.30 pm to 3.00 pm)	Significance of GIAN Introduction of the workshop and experts	Local Coordinator Coordinator
	Lecture-1:1 hr.: (3.00 pm to 4.00 pm)	Crop health improvement, the key for adequate food production	A senior scientist
	Lecture-2: 1 hr.: (4.30 pm to 5.30 pm)	Next Generation technologies for crop health improvement, an overview	Foreign Expert
	Lecture-3: 1 hr.: GM (6.00 pm to 7.00 pm)	Plant diseases, an overview and impact on food production	Coordinator
	Lecture-4: 1 hr.: GM (7.30 pm to 8.30 pm)	Microbial technologies for drought tolerance and plant growth improvements	Foreign Expert

	Tuesday, 15 November, 2022 <u>4.00 pm – 8.00 pm</u>	
Lecture-5: 1 hr.: (5.30 pm to 6.30 pm)	Plant diseases in a global perspective for food safety and security	Foreign Expert
Lecture-6: 1 hr: (7.00 pm to 8.00 pm	Genome-based approaches for studying beneficial and plant pathogenic bacteria	Foreign Expert

	Wednesday, 16 November, 2022 <u>4.00 pm - 8.00 pm</u>	
Lecture-7: 1 hr.: (4.00 pm to 5.00 pm)	Plant Nematodes, hindering agents in crop improvement strategies	Coordinator
Lecture-8: 1 hr.: (5.30 pm to 6.30 pm)	Role of extension and advisory services in introducing new generation technologies	Foreign Expert
Lecture-9: 1 hr: (7.00 pm to 8.00 pm	Bioinformatics for analyzing genomes of plant pathogens	Foreign Expert

Note: Title and schedule of lectures may be modified



		Thursday, 17 November, 2022 <u>4.00 pm – 8.00 pm</u>	
Day-4	<u>Lecture-10:</u> 1 hr.: (4.00 pm to 5.00 pm)	Nanotechnology for crop health protection and improvement	Coordinator
	Lecture-11: 1 hr.: (5.30 pm to 6.30 pm)	Integrated microbial strategies for soil and plant health improvement	Foreign Expert (FE)
	<u>Lecture-12:</u> 1 hr: (7.00 pm to 8.00 pm	CV and PPT preparation for impressive professional presentations	Foreign Expert (FE)

		Friday, 18 November, 2022 <u>2.30 pm – 8.00 pm</u>	
Day-5	Lecture-13: 1 hr.: (2.30 pm to 3.30 pm)	Multifacial microbial antagonists, key role in plant protection and crop health improvement	Coordinator
	Lecture-14: 1 hr.: (5.30 pm to 6.30 pm)	New generation biotechnological strategies for crop improvement	Foreign Expert
	Lecture-15: 1 hr.: (7.00 pm to 8.00 pm)	Preparing your scientific messages for different audiences – Language, culture, dress etc.	Foreign Expert

Saturday, 19 November, 2022 <u>2.30 pm – 6.30 pm</u>		
Lecture-16: 1 hr.: (2.30 pm to 3.30 pm)	Disease prediction models	Foreign Expert
Lecture-17: 1 hr.: (3.45 pm to 4.45 pm	Social and Economic hurdles in Adaptation of new generation crop improvement technologies Foreign Expert	
Valedictory Session <u>5.00 pm – 7.30 pm</u>		
Lecture-18: 1 hr.: (6.15 pm to 7.15 pm)	Valedictory lecture	Chief guest
7.15 pm to 7.20 pm	Special Remark	Foreign Expert
7.20 pm to 7.30 pm	Vote of thanks	Coordinator

Dav-6

International Workshop on



Complementing Current Techniques with Next

Generation Technologies for Crop Health Improvement

14-19 November, 2022

Registration Form

1. Name of the applicant (in	n block letters):			
2. Father`s/Husband`s Nar	ne:			
3. Date of birth:	Natio	onality		Recent Photo
4. Passport/Aadhar numbe	r:			
5. Permanent address:				
			•	
6. Address for corresponde	nce:			
Email:			.Mob:	
7. Educational qualifications	from High School onwards	s in the followi	ng format.	
Examination Passed	Board/University	Year	Marks %	Subjects
High School				
B.Sc.				
M.Sc.				
Ph.D. (Not mandatory)				
8. Other relevant experience	e, if any:			

Date.....

Important dates

Last date of receiving applications: Declaration of selected candidates: Submission of registration fee: Online link to registered candidates:

Address for correspondence

15 October, 2022. 25 October, 2022 05 November, 2022 10-12 November, 2022

(Signature of the applicant)

Course Fee (virtual mode)

Students :	Rs. 300
Scientists, Teachers etc.	Rs. 500
Foreign Participants:	USD 10
(Certificates will be given to registered	participants)

Bank account details

Account holder	: Coordinator, GIAN Course
Bank:	Canara Bank
Branch:	Aligarh Muslim University
Account No.:	110069914428
IFSC No.:	CNRB0005247

Prof. Mujeebur Rahman Khan, Coordinator, GIAN Course Ph.D., FNAAS, FIPS, Professor, Chairman & Ex-Dean Department of Plant Protection, Faculty of Agricultural Sciences Aligarh Muslim University, Aligarh-202002 (UP), India Email: mrkhan.amu@gmail.com; Phone: +91-9412527112