

PATRON IN CHIEF

Dr. Raja Ali Raza Anwar, *HI, SI, PoP*
Chairman, PAEC

PATRON

Dr. Shakeel Abbas Rofi,
Member (Science), PAEC
Dr. Waheed S. Khan,
Officiating DG (A&B), PAEC

ORGANIZING COMMITTEE

Dr. Uzma Maqbool (DCS/Director)
Dr. M. Akhtar (DCS/ Course Coordinator)
Dr. M. Saleem (DCS/ Co-Course Coordinator)
Dr. Naeem Ahmad (Head, TSD)
Mr. Jafar Hussain (PS, DAIT Group)
Mr. M. Irfan Tahir (Head Admin.)
Mr. Zulfiqar Ali (Head, LAO)
Mr. Ghulam Farid (CO, SESD)
Mr. M. Arshad (SSA, SESD)

FACULTY

Dr. M. Akhtar, (DCS/ Course Coordinator)
Dr. M. Yasin Ashraf, Ex-Head, SESD
Dr. M. Saleem, DCS, NIAB
Dr. Asif Naeem, PS, NIAB
Dr. Sajida Bibi, PS, NIAB
Dr. Atif Riaz, PS, NIAB

For Further Information

Dr. M. Akhtar, Course Coordinator
Nuclear Institute for Agriculture and Biology
(NIAB) Jhang Road, Faisalabad
PABX: 041-9201751 to 69 (Ext. 3140, 3141)
Cell: 03333542277
Fax: 041-9201776 Email: akhtarniab@gmail.com

APPLICATION FORM

(Specimen: Use capital letters)

Photo

Name: -----

Official Position / Student: -----

Organization: -----

Address: -----

Phone (Off.) ----- (Res.) -----

Mob No.: ----- E-mail: -----

Date of birth: -----

CNIC# -----

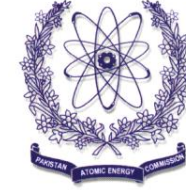
Academic Qualification

	Inst.	Div.	Subject	Year
M.Sc.				
M.Phil				
Ph.D.				

Research/Training experience: -----

Particular interest for training: -----

(Signature of Applicant)



15th National Training Course

On

**“HANDS-ON TRAINING ON
MODERN TECHNIQUES IN
RESEARCH ON ABIOTIC
STRESS TOLERANCE IN
PLANTS”**

April 7-9, 2026



**NUCLEAR INSTITUTE FOR
AGRICULTURE AND BIOLOGY
(NIAB), FAISALABAD**

(PAKISTAN ATOMIC ENERGY COMMISSION)

About NIAB

The Nuclear Institute for Agriculture and Biology (NIAB), an establishment of Pakistan Atomic Energy Commission (PAEC), is primarily a research institution involved in goal-oriented biological and agricultural research. NIAB was established in 1972. It has well-equipped laboratories and facilities such as Cobalt-60 irradiation Sources, radiation-measuring instruments, N-15 analyzer, UV and IR spectrophotometer, Atomic absorption spectrophotometer, ICP, Porometer, Pressure Chamber, Osmometer, GAS Chromatograph, HPLC, Amino acid analyser, PCR, High speed electrophoresis, Photosynthesis measuring system (IRGA), Capillary electrophoresis, DNA sequencer, Elisa readers, etc. A well-stocked Library is linked with National Library of Biological Sciences through wide-area network.

The research programs include: development of new gene pool and varieties of crops; crops protection through insect pest management and disease control; fertilizer and water management for major crops; abiotic stress management; sustainable use of salt-affected wastelands and saline water for crop production; improving health nutrition and reproduction of livestock.

NIAB has also been affiliated with PIEAS as NIAB-C since 2014 for M.Phil. and Ph.D. degree programmes in Biological Sciences.

International Atomic Energy Agency (IAEA) has conferred NIAB the status of its collaborating center (IAEA-CC) owing to outstanding achievements of the institute.

Background

Abiotic stresses such as drought, salinity, extreme temperature, heavy metals and radiation are the most important limiting factors for crop productivity, which may affect food, feed and raw material requirements of ever growing world population. To overcome

these limitations and for improvement of crop productivity, stress tolerant crop varieties have to be developed. NIAB scientists have developed technologies which can successfully be utilized to identify stress-tolerant germplasm at seedling or mature stages. Using physiological, biochemical, carbon isotope discrimination (CID) and biotechnological techniques, high-yielding and stress-tolerant crop cultivars can be developed. In addition, certain shotgun approaches have also been developed to increase the stress-tolerance potential of crops.

Objectives

The objectives of the course are to disseminate the knowledge and to provide training to utilize different techniques and equipment to estimate the stress tolerance in crop plants. The purpose of proposed training is to improve the scientific vision of young scientists, teachers and scholars. The training course will also provide a platform for enhancing interactions and sharing of experiences among relevant research institutes.

Eligibility

Young teachers/researchers/ scholars having a university degree, who are actively involved or opt for a career in Biological Sciences including, Soil Science, Agronomy, Botany, Plant Breeding allied sciences for stress tolerance and plant stress management.

How to apply?

Please send the application form along with demand draft of the course fee in name of Head, LAO, NIAB, or cash deposit receipt (CDR) with the Account Branch, NIAB Faisalabad. Application should reach the Course Coordinator by 6 April, 2026.

Course Fee

Professionals: Rs. 5000/-

Students: Rs. 3000/-

Outlines of Training Program

A. Screening

- Drought tolerance: Cell membrane stability and other physiological indices –Salt tolerance germination, plant height, root, shoot and biomass stress tolerance indices and K/Na ratio criteria -High temperature of heat-stress tolerance: Cell membrane thermostability and physiological attributes
- Screening for high water use efficiency using ¹³C isotope discrimination technique.

B. Stress Physiology and Biology

- Determination of water relations through relative water contents, excised leaf water loss, water potential by pressure Chamber, Osmotic potential using Osmo-meter and turgor potential, etc.
- Photosynthetic efficiency by IRGA and Porometer

C. Molecular techniques

PAGE, PCR, RAPD, Molecular basis of stress tolerance, Marker assisted breeding for stress tolerance.

D. Field Training

- Demonstration/practical for screening in pots, lysimeter, and field conditions.
- Seed testing (viability and germination, dormancy and seed treatments for breaking dormancy and improved germination percentage).

E. Water-Use Efficiency

- Agronomic water use efficiency
- Techniques for soil moisture determination
- Irrigation methods (flood, drip, sprinkler, etc.)
- Transpiration measurements for
- Single leaf (porometry) and whole plant