Resource Persons

Prof. Dr. Muhammad Ashraf, SI, Chairman, PSF Dr. Muhammad Hamed, Director, NIAB, Faisalabad Dr. M. Yasin Ashraf, TI, NIAB, Faisalabad Dr. Javed Akhter, ,NIAB, Faisalabad Dr. Khalid Mahmood ,NIAB, Faisalabad Prof. Dr. Rashid Ahmad, U.A., Faisalabad Prof. Dr. Mumtaz Hussain, U.A., Faisalabad Prof. Dr. Mansoor Hameed, UA, Faisalabad Dr. Muhammad, Ashraf, NIAB, Faisalabad Dr. Amjid Hameed, NIAB, Faisalabad Dr. M. Rafig Asi, NIAB, Faisalabad Dr. Muhammad Saleem, NIAB, Faisalabad Dr. Zafar Igbal, NIAB, Faisalabad Mr. Wajid Ishaq, NIAB, Faisalabad

Organizing Committee

Dr. Muhammad Hamed (Director NIAB) Dr. M.Yasin Ashraf, TI, (Course Coordinator) Dr. JavedAkhter (CS, NIAB) Dr. Khalid Mahmood (Head, SS Division) Dr. Muhammad Ashraf (PS, NIAB) Dr. M. Saleem (PS,SSDivision) Mr. Jafar Hussain (SS, DAIT Group, NIAB) Mr. M. Rizwan (SS, SS Division) Mr. Sajjad Mahmud (Pr. Administrator) Mr. Zulfigar Ali (Head LAO)

For Further Information

Dr. M. Yasin Ashraf TI. Course Coordinator Nuclear Institute for Agriculture and Biology (NIAB), Main Jhang Road Faisalabad, Pakistan Ph: 041-9201789 PABX: 041-9201751to69(Ext.3056) Cell:03007623885 Fax:041-9201776 Email: niabmyashraf@gmail.com

Арр	lication	Form
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(Specimen)

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Name:				
Father's Name:				
OfficialPosition:				
Univ./Organization:				
Address:				
Phone:(Off.)				
Fax:E-mail:				
Date of birth:				
Academic qualification:				
Degree Institution	Subject	Year		

M.Sc. M.Phil. Ph.D. experience:-----Research/training Particular interest for training:-----Recommendation of Head of Institute/Department: -----Accommodation required (Yes/No):-----

Student Rs. 1000/Day ; Professional Rs. 2000/Day

(Signature of applicant)

6th National Training Course

ON

"MODERN TECHNIQUES IN RESEARCH ON ABIOTICS TRESS TOLERANCE IN PLANTS"

March14-18, 2016





NUCLEAR INSTITUTE FOR AGRICULTURE AND BIOLOGY (NIAB), FAISALABAD (PAKISTAN ATOMIC ENERGY COMMISSION)

About NIAB

Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad is a research and development centre having well-equipped laboratories and facilities such as Cobalt-60 irradiation sources, radiation measuring instruments, N-15 Analyzer, UV and IR Spectrophotometers, Atomic absorption spectrophotometers, ICP, Porometer, Pressure chamber, Osmometer, Gas chromatographs, HPLC, Amino acid analyzer, PCR, High speed electrophoresis, Photosynthesis measuring system (IRGA), Capillary electrophoresis. DNA sequencer, Controlled temperature ultra centrifuges, Freeze dryer, Cryobank, Stereo and light microscopes, Biological oxidizer, Elisa readers, etc. A well-stocked Library is linked with the National Library of Biological Sciences through wide area network.

The research programs include: Development of new gene pool and varieties of crops; Crop protection through pest management and disease control; Fertilizer and water management for major crops; Abiotic stress management; Sustainable use of saltaffected waste-land and saline water for plant production, and improving health, nutrition and reproduction of livestock.

Background

Abiotic stresses such as drought, salinity, extremes in temperatures, heavy metals and radiation, etc. are the most important limiting factors for plant productivity. Due to which food, feed and raw material requirements of ever growing world population cannot be met. To overcome these limitations and for improvement in 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 stress tolerant crop cultivars can be developed. In addition, certain shotgun approaches can be developed through which stress tolerance potential of crops can be increased.

Objectives

The objective of the course is to disseminate the knowledge and to provide training to utilize different techniques and equipments to estimate the stress tolerance in crop plants. The purpose of proposed training is to improve the scientific vision of young scientists and enhancing interaction and sharing of experiences between relevant research institutes in the country.

Eligibility

Young teachers/researchers having a university degree, who are actively involved or opt for a career in plant breeding for stress tolerance and in plant stress management.

How to apply?

Please send the Application Form along with demand draft of course fee in the name of Head, LAO, NIAB, Faisalabad, Pakistan through our Institute. Application should reach the Organizing Committee upto 4th March,2016.

Course Fee

Professionals: Rs

Rs.4000/-

Students: Rs. 3000/-

Outline of Training Program

A. Screening

- •Drought tolerance: Cell membrane stability, and other physiological indices
- •Salt tolerance: Germination, plant height, root and biomass stress tolerance indices and K/Na ratio criteria

- High temperature or heat stress tolerance: Cell membrane thermo-stability and physiological attributes
- •Screening for high water use efficiency (WUE) Using ¹³Cisotope discrimination technique

B. Stress Physiology and Biology

- •Determination of water relations through relative water contents (RWC), excised leaf water loss, water potential by Pressure Chamber, Osmotic potential using osmometer and turgor potential etc.
- •Photosynthetic efficiency, by IRGA and Porometer
- •Temperature changes through infra red thermometer and its relation with plant canopy processes

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 tanks, field conditions
- Seed testing (viability and germination, dormancy, and seed treatments for breaking dormancy and improved germination percentage and rate)
- •Nursery raising: Methodology from seed to seedlings ready for field planting
- Planting Techniques: Land preparation and sowing method s(for crops), and Ditches / Furrows or Ridges/mounds(for trees and shrubs)

E. Water-Use Efficiency

- •Techniques for soil moisture determination (Neutron moisture probe)
- •Irrigation Methods (flood, drip, sprinkler, etc.)
- •Transpiration measurements:
- •Single leaf (porometry) and whole plant (Heat Pulse Technique)

F. Field Visit

Visit to Biosaline Research Station, PakkaAnna