

Abstract

Biotechnology and Data Science for Crop Health; a step forward for National Plant Diagnostic and Disease Surveillance Network

The aim of this proposal is to improve the skills of Plant Biotechnologists to build efficient and cost-effective disease diagnostic assays for developing a plant disease diagnostic network across the country. Erratic changes in climate have perturbed the whole agricultural ecology including crop diseases. Global disease surveillance is being proposed to ensure food security. Pakistan is extremely vulnerable to climate change and crop disease epidemics. Despite of having sufficient equipment in biotechnology laboratories across the country, we don't have any integrated plant disease diagnostic program and thus there is no disease surveillance system even for our major crop diseases. In order to develop a state-of-the-art National Plant Disease Diagnostic Network, there are a number of requites like trained manpower, well equipped laboratories, supercomputers and other surveillance equipment like geographical information system (GIS), remote sensing machinery etc. All these facilities are quite recent in Pakistan and also unfortunately, crop health is still the most neglected area of Agriculture. At CAS-AFS, we have recently got all these facilities and now we just need to train our faculty and students to efficiently use these equipment and resources for disease detection and surveillance. There are several biotechnology laboratories across the country that is equipped for at least basic plant disease diagnostic tests. We just need to develop the workforce across the country for achieving our ultimate objective of building Plant Disease Diagnostic Network for better surveillance and forecasting of crop diseases to ensure food security in changing climate. The AWB USA volunteers will be engaged in training, capacity building, case studies and interactive workshops with the participants on-site or virtually during the project years.