

N Prasad Memorial Lecture Award – 2015

Perspectives in Food Security and Plant Pathology under Changing Climate

SS Chahal

Chairman, Agri Knowledge Foundation and Former Vice Chancellor, MPUAT, Udaipur, Rajasthan and DBU Punjab, India. Email : chahalsspau@yahoo.com



SS Chahal

Abstract

Food is universally a fundamental human right and food security an agenda wherein all people at all times may have both physical and economic access to basic food they need for active and healthy life. It is multidimensional issue involving government policies related to food from farm to plate as well as enhancing food production to meet the ever increasing demand for food. Green Revolution (GR) a miraculous event of twentieth century saved millions of people from starvation. But it has happened at the cost of fast depletion of natural resources besides reduced genetic diversity and increased vulnerability to pest and diseases. Many insignificant pathogens have become major problems and new virulent races have appeared making plant disease management more challenging. Mono-cropping and excessive use of N fertilizers, vastly disturbed soil ecosystem and reduced organic matter in soil. Emerging plant pathological problems drew the attention of plant pathologists and plant pathology became an important subject in agricultural research and education. Since 1990s biotechnological approaches in plant pathology have received more attention. Significantly molecular markers have been developed for identification and diagnosis of a number of plant pathogens. It requires to be strengthened through application of 'omics' research for better understanding of host pathogen relationship and formulating disease management strategies. Gene sequencing and decoding of genomics of serious pathogens like *Phytophthora infestans*, *Xanthomonas axonopodis* pv. *punicea*, *X. axonopodis* pv. *citri*, *Pyricularia* sp. etc. are path-breaking in understanding development of new virulence and developing suitable modifications in genomes for developing host resistance. To reap the benefit of advancements in different areas it is important to develop disease specific IDM modules for successful management of diseases of economic importance to reduce losses in crop production for achieving food security. Climate change will be major impediment in achieving food security in the 21st Century. With changing weather parameters plant pathogens may attribute tendencies to evolve new variants at higher rate, multiplication behaviour and parasitic fitness ability thus shifting prevalence and occurrence of disease spectrum. Hence there is need to relook development and application of new technologies, including curbing losses due to abiotic and biotic stresses to achieve food security under fast changing climate.

Key words: Climate change, food security, plant disease management, plant pathology

Citation: Chahal SS. 2016. Perspectives in food security and plant pathology under changing climate. *J Mycol Pl Pathol* 46(2): 114-112.