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## Food security at stake: Challenges and opportunities

Food security implies availability of adequate food to everyone in all times to come. FAO defines 'food security' as a state of affairs when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active. Unfortunately food security faces several challenges. Ever-growing population has led to reduction in arable land as villages closer to cities are losing their agrarian identity, changing climate, globalization and plant pests are other threats responsible for dwindling food security. All our efforts to produce more gets jeopardized due to formidable increase in food prices and more importantly enormous losses due to diseases and other plant pests causing approximately 40% reduction in yield worldwide primarily due to want of timely diagnosis and advisory support. Saving even 1% loss can feed million. Managing burgeoning population is a difficult task as it involves social and political commitment but food security can be ensured by[1] optimizing productivity from continuously reducing arable land by resorting to innovative technology, organic farming and [2] mitigating losses from various pests and disorders, and increasing productivity which otherwise is lost due to pest and diseases through a blend of physical, chemical/biological, immunological/host resistance - signifying IPM/holistic approach and more importantly diagnostic and advisory support, from plant health clinic is vital to boosting food security.

To prevent massive losses, well organized, farmer-centric clinics, with better physical infrastructure, trained pathologist, agronomist, entomologist, soil scientist and world-class lab capable of tackling wide range of problems, modeled on human clinics need to be created in rural and urban areas at focal point on the pattern of primary health centers at district- and sub-division level, so that growers need not roam from pillar to post get solutions for plant health and ailments. Simultaneously mobile plant health clinic must be promoted, which can come to the rescue of growers during epiphytotic outbreaks. Clinics may also provide online diagnosis. Pesticides offer respite in severe outbreak but overdependence on pesticides needs to be avoided. However pesticides should not be kept at bay and used as per need. Clinics strengthen plant-healthcare system by monitoring pest scenario, issuing pest alerts organizing plant health camp shall help in reducing losses by efficient communication through SMS and telephony. To avoid spurious pesticide clinic may have its own agro-pharmacy. Clinic educate farmers on pest diagnosis and management, advise government, training/teaching students, produce plant doctors, keep vigil on bioterrorism, promote integrated management to minimize pesticide use and saving biodiversity, monitoring pest/diseases scenario, issuing pest alerts, organizing camps on plant-health/pesticides, and strengthening mobile clinic to avert outbreak. The clinics invigorate farmers' access to 7X12 information through toll-free telephony, mobile/internet, providing online-advice, enhancing farmers' knowledge-bank through training/print/electronic devices impact assessment, and strengthening farmer-extension-government collaboration for optimizing techno-resources. Recommendation emanating from plant health clinics will go a long way in managing the problem and ensuring food security So far, benefits ushering productivity have been phenomenal. Diagnosticians are must have deep insight to Materia Medica of plant diseases before selecting or using fungicides/ IPM. Pesticide hazards, environmental pollution, resistance development can be avoided following guidelines of Pesticide Action Network (PAN) and Fungicide Resistance Action Committee (FRAC), and significant improvement in crop yield can be obtained. However, we have to promote integrated pest management, shedding overdependence on pesticides. So far, benefits ushering productivity have been phenomenal let's embrace innovative technologies and strengthen plant health clinic and promote IPM or holistic approach to ensure food security.

## **Biography**

Mahendra P Srivastava born in 1942, obtained PhD in 1967 from University of Allahabad and subsequently joined Pb/Haryana Agricultural University, served as rice/cotton Pathologist, Extension Plant Pathologist, Professor, Head Plant Pathology, and Director Planning, Monitoring till 2002. He is considered an architect of Extension Plant Pathology and remembered for his contribution and innovative periodicals -- Plant Disease Warning & Plant Pathology Courier among others. He is known worldwide for his contribution in technology transfer and plant clinic. He has played a pivotal role in popularization of plant clinic by delivering invited lectures in India, China, New Zealand, Singapore, Italy, and Germany. He organized and chaired an 'Evening Session on Plant Health Clinic' in 9th International Congress of Plant Pathology at Turin, Italy in 2008, and delivered an invited keynote address on 'Plant clinics hold key to food security and organized Key note Session-5 in 10<sup>th</sup> ICPP at Beijing, 2013.

He is recipient of several honors and awards, which include 'Fellowship of The National Academy of Sciences' in 1988, 'Best Extension National Award' 1996, Keynote speaker in 8th ICPP, New Zealand in 2003, and invited speaker on Knowledge transfer in 10<sup>th</sup> ICPP, 2013 at Beijing, Dr Radhakrishnan Award 2013, and International Technological Achievement Award on 9th February 2014. He has been President of Indian Society of Plant Pathologists, Chief Editor, Indian Journal of Plant Pathology, and Member Pesticide Panel of DST, GOI, and Technical Advisor of Pestology. His key areas of interest are: technology transfer, plant health clinic, integrated pest management and fungicides. Currently he is offering online diagnosis and remedies against pest, and advice on establishment of plant clinics and latest know-how in plant protection through his web portal www.xsgrowth.com at zero cost.

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