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Online Decision Support System for the Management of Crop Diseases – The Tool to Empower Farming Community

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Abstract

The livelihood of mankind is dependent on agriculture and food production. The important crops cultivated by the farmers are many a time suffer due to devastating losses inflicted by the plant pathogens and insect pests. The grain yield is influenced by both biotic (plant pathogens) or abiotic stresses i.e. nutrient deficiencies or environmental imbalances resulting in huge yield losses. To alleviate these losses, it is very essential to characterise the plant pathogens involved in the causation of plant diseases and their timely diagnosis in order to manage them effectively, efficiently and timely. Chhattisgarh state is dominated by rainfed paddy (80%) during monsoon season followed by soybean, pigeonpea, urd / mung bean and maize. Similarly, chickpea, lathyrus, wheat, mustard, linseed and paddy are the major crops grown during winter / summer season besides important vegetables *viz.*, kharif potato, tomato, chilli, brinjal, ginger etc. These crops suffer heavily from fungal, bacterial, viral and nematode problems during both the seasons. Disease diagnosis is mainly based on characteristics symptoms (necrotic, hypoplastic and hyper plastic), signs and syndrome produced by different plant pathogens and host pathogen interactions. The management of plant diseases depends mainly in its correct diagnosis. Plant health diagnosis and management strategies to combat these diseases are regularly provided to the farmers of Chhattisgarh by the Plant Protection staff posted in 25 Krishi Vigyan Kendras of the university working under our guidance and close supervision. Identification and diagnosis of plant diseases is given to the farmers by advocating them to download the online Crop Doctor/Vegetable Doctor App developed by our university based on actual field pictures of the plant diseases mainly on paddy and vegetable crops. The management strategies to solve the disease problems are also advised to the farmers based on the appearance of the disease symptoms noticed in that area either by extension staff of the State Department of Agriculture or by Subject Matter Specialist (Plant Pathologists/Entomologists) posted in 25 KVKs by sending SMS to the registered farmers.