An E-Agriculture Advisory and Monitoring System to Empower Farmers in Managing Rice Pests and Diseases in Sri Lanka

J. Ponnamperuma Arachchi [1]*, D. M. B. N. Bandara[2], S. P. M. G. N. H. Perera[2] and L. Nugaliyadde[3]

[1]District Director of Agriculture, District Secretariat, Galle, Sri Lanka
[2]Independently Affiliated, Sri Lanka
[3] Sri Lanka Organization of Agriculture Professionals

Abstract

An E-Agriculture advisory and monitoring system was developed aiming to enable rice farmers in Sri Lanka to receive instructions on correct identification and recommended solutions for their pest and disease problems of rice in time and, to facilitate relevant authorities for monitoring of pest and disease incidents to identify potential outbreaks.

Many farmers are not competent to identify pests and diseases related issues and decide the correct management practices themselves. They expect the assistance of the field officers of government agriculture extension services for this purpose. However, lack of officers and the knowledge gaps that exist among them hinder the achieving of these expectations.

The system developed is composed of a web application and a mobile application called "*Govi Vedaduru*", compatible with Android 4.0+ version. The mobile application was developed to provide an advisory service through smart phones enabling the farmers to obtain expert guidance from the Rice Research Stations of Department of Agriculture in identifying their field problems and recommend remedial measures to follow. A user-friendly mobile interface was designed in local languages (initially Sinhala) to upload maximum of five images and information about the pest and disease problems by the farmer. Experts access individual incidents, analyze the problem through the web application and make recommendations allowing farmers to receive full advice in Sinhala language through the smart device. Data analysis and reporting module was developed to display classified incidents of pests and diseases. The system was initially deployed in selected five areas (*yaya*) of rice cultivation representing two agro-ecological zones in the Galle district of Sri Lanka in minor season (*Yala*) of 2017, as a pilot project and 60 farmers were registered to the system. During the period of June to October 2017, 19 inquiries on pest and diseases were received and correctly identified and solutions in Sinhala language were sent back to the farmer accounts.

In Galle district, 33 "*Govivedaduru*" accounts were created to represent all 33 Agrarian Service Centre areas and usernames and passwords were given to the Agri. Development Officers in the relevant area during maha 2018/19 to upload farmer field problems to the system. Apart from the farmer user accounts in Galle district, these 33 Agrarian Service Centre (ASC) accounts are expected to monitor the pest and diseases in the district and convey the advisory message for pest/disease problem to the relevant farmer. Problem of getting involved with this advisory & surveillance system by the farmer due to the unavailability of smart phones with them can be solved by this approach to some extent.

The "*Govi Vedaduru*" mobile and web application was designed to the whole 25 districts and hence, this application can be implemented island-wide. However, language of "*Govi Vedaduru*" mobile application should be translated to Tamil language to extend it to Tamil speaking areas.

Chat facility and news facilities are to be included for further improvements of the system to reduce the gap between farmer and agriculture authorities.

Corresponding Author: *jponnamperuma@yahoo.com