

Dr. LADA: diagnosing black pepper pests and diseases with decision tree

ABSTRACT

Malaysia has the distinction of being the world's fifth largest pepper producer country whereby 98% of the country's annual production comes from the State of Sarawak. However, crop loss due to pest and disease incidence has been identified as one of the major pepper production constraints. Inefficient advisory mechanism and assistance from extension staff due to technical and logistic limitations have hindered the pest and disease diagnosis effort for pepper. Currently, extension staff from MPB will have to travel to the rural farms when contacted, or during their visits to advice or treat the plants. Therefore, "DR. LADA", was jointly developed by Malaysian Pepper Board and Universiti Kebangsaan Malaysia to diagnose six pests and ten diseases of pepper which commonly found in Malaysia and recommends appropriate management measures to solve the problems. This an interactive android-based mobile app used an inference engine utilises the forward-backward chaining methods to trigger the correct output from decision tree that inter-relates the expert rules which extracted and validated by Malaysian Pepper Board experts. Dr. LADA is a native mobile app develop on a java-based platform which provides fast performance, high degree of reliability and can be used without any internet connection. The app has been tested with 10 case studies carried out by Malaysian Pepper Board and scored 97% of accuracy. Having Dr. LADA, user can identify problems by answering a series of questions from symptoms shown by several plant parts. Therefore, the dependency of farmers on extension staff are reduced, and indirectly minimizing the extension activity costs.

Keyword: Agriculture app; Diagnosing plant disease; Decision tree