Abstract

Rice (Oryza sativa) is one of the most staple crops of tropical Asia and grown in wide range of agroecological conditions. The rice crop health survey data are useful sources of data to help understand yield constraints in farmers’ fields and their complex relationships in different agroecosystems. This studies were focus on the co-occurrence network-based analysis, which is are widely used as a tool to study the complex phenomenon using rice crop health survey data from the farmers’ filed of 5 countries across South and Southeast Asia. The result of network analysis revealed the network models were different between countries and seasons. The determination of the topological features of network models can suggest the promising injuries in the network to being the targets to be monitored for rice pest management. For example, the co-occurrence network of rice injuries of Thailand in dry season revealed three groups of the combination of injuries. Determined the topological features of the network, brown spot (BS), stem rot(SR) and deadheard (DH) present high betweenness, sheath rot (SHR) has high clustering coefficient. It indicated that BS, SR, and DH were frequently observed with other injuries, and SHR formed complex concurrence. In the network model, DH and SHB was associated. To apply to design the pest management program, BS, DH, SR and SHR are potentially to be good candidates to be monitored because if they presented under favorable conditions, which maybe also promoted the incidence of other associated injuries. This early stage of the application of network analysis to rice injury observations, the implications of co-occurrence network structure to design the pest management program are needed to further investigate.