

Co-occurrence relationships between Insect Pest and Disease from farmers' field survey data revealed by network analysis

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Pests are the block of big barrier for agronomist to deal with in order to improve the productivity. Surveys of farmers' fields are the sources of information to determine the importance of pests. Spearman's rank correlation-based network analysis was conducted to identify the co-occurrence correlations of incidence of insect pest, and disease from survey data which started collecting from the 450 farmers's fields in lowland rice growing areas in five countries including India, Indonesia, Philippines, Thailand and Vietnam from 2007 to 2010. Network analyze revealed interaction among insect pest and disease and strongly indicate the occurrence of their relations. In wet season, incidence of bacterial leaf streak, the damage of whorl maggot, the incidence of silver shoot and the number of brown plant hopper showed strong co-occurrence with other pests, and the incidence of narrow brown spot, the number of brown plant hopper, and white backed plant hopper showed strong co-occurrence in dry season. The strong co-occurrence of selected pests potentially indicated the key pests to control.