

DEVELOPMENT OF A DECISION SUPPORT SYSTEM FOR THE
FUMIGATION OF MILLED RICE BAG-STACKS IN THE TROPICS

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The development of a Fumigation Decision Support System (FDSS) is described that enables pest control operatives in milled rice bag-stores to predict when future fumigations will be required and whether previous fumigations were successful. The FDSS consists of an insect monitoring technique, an insect growth model and a pragmatic pest control threshold. The last two elements are contained in a computer program. The growth model, which is central to the system, is specific to *Tribolium castaneum*, and is valid only for use in the humid tropics.

The FDSS was tested in rice stores in Indonesia and a logistic model of insect population growth found to perform best. Within the limitations of this test, the predicted time to fumigation on average deviated by only about one week from the actual time to fumigation. The FDSS was also tested by unsupervised pest and quality control staff at two godowns sites in Java, after suitable training. Their performance was evaluated. They found the system easy to use and fumigation predictions again performed well against actual time to fumigation, deviating by less than one week. The FDSS is now ready for operational use.