

# Regional differences in management and biosecurity practices in Madagascar

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A multivariate analysis of management and biosecurity practices in smallholder pig farms in Madagascar

## Abstract

A cross-sectional study was carried out in 2005 and 2006 in three geographical areas of Madagascar to investigate and differentiate swine farm management and biosecurity practices in smallholder farming communities. Questionnaire data from a total of 709 pig farms were analysed using multiple factor analysis (MFA) and hierarchical cluster analysis (HCA). Variables describing management and biosecurity practices were organised into five groups: structure of the farm, animal-contacts, person- and vehicle-contacts, feeding, and sanitary aspects. In general, few biosecurity measures were implemented in the pig farms included in the study. Regional differences in management and biosecurity practices emerged from the MFA and were mainly due to, in order of decreasing importance: structure of the farm, sanitary aspects, feeding and animal-contacts and, to a lesser extent, person- and vehicle-contacts. HCA resulted in the differentiation of four distinct types of farms in each of two study areas, Arivonimamo and Marovoay, while no grouping could be identified amongst farms in Ambatondrazaka area. The characterisation of the different types of smallholder pig farms will allow adapting recommendations on husbandry practices and control measures in pig farms of these regions of Madagascar. The development of tailored recommendations is essential for Malagasy smallholders who have limited resources and need to make evidence-based management changes to reduce the risk of contagious diseases in their herds.

### Keywords:

Multivariate analysis; Multiple factor analysis; Hierarchical cluster analysis; Management practices; Biosecurity



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