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"Resilience of agricultural systems against crises"

A Typology of the Rice Based Cropping Systems of the Mekong Delta, Vietnam

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Abstract

In this study the rice based cropping systems of the Mekong Delta of Vietnam are structured with focus on their water pollution potential by agro chemicals.

Experts agree that primarily hydrological and secondly soil conditions explain the establishment of certain cropping systems in the Mekong Delta, whereas dykes, sluice gates and pumps are employed in most places. Often times socio economic factors rather than ecological conditions determine when and where those measures of water control are taken into use. Nevertheless, when elaborating an overview, cropping systems are still best structured according to ecological conditions that follow a natural gradient.

Rice based cropping systems can be characterised according to their water pollution potential because farmers display for each system a typical behaviour of fertiliser and pesticides' application whereas the residues or a misuse of these agro chemicals pollute the water bodies. Experts at the Can Tho University and farmers in three agro ecological zones have been interviewed to find out what are typical farming practices and by which factors other than ecological are they influenced. It was found that at the coastal zone where farmers typically practice integrated agriculture-aquaculture pesticides are sprayed the least frequently and thus the lowest water pollution should occur. In the intensive systems of two and three rice crops per year that are common in the upper and middle part of the Delta no difference in the use of pesticides was detected though a trend in the survey data suggests that farmers practicing double rice on acid sulfate soil are more reluctant to reduce agro chemicals than triple rice farmers on alluvial soil. Maybe that is because the more unfavourable ecological conditions that prevail with acid sulfate soils lead to a higher pest pressure. No difference in the amount of applied fertiliser among the three systems was found and it seems that the pollution potential by a misuse of synthetic fertiliser is generally small if not negligible. The influence of socio economic factors on specific farming practices could not be proven with this survey.

Keywords: Cropping systems, fertiliser, Mekong Delta, pesticides, rice, water pollution

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