

## **Integrated freshwater aquaculture, crop and animal production in the Mekong Delta, Vietnam: determinants and the role of the pond.**

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### **Abstract**

Promotion of integrated aquaculture with agriculture, including crops and livestock (IAA-farming), requires consideration of both bio-physical and socio-economic contexts. The major factors influencing the adoption of IAA-farming by households at three sites in the Mekong delta were identified. Special attention was given to the multiple roles ponds play in IAA-farming systems. Information was collected through semi-structured interviews and discussions with focus groups and key individuals. Data were analyzed using multivariate factor analysis, analysis of variance or participatory ranking methods. Three major IAA-systems were identified: (1) low-input fish farming integrated with intensive fruit production (system 1), (2) medium-input fish farming integrated with less intensive fruit production (system 2), and (3) high-input fish farming integrated with less intensive fruit production (system 3). System 1 was commonly practised in a rural fruit-dominated area with fertile soils, while systems 2 and 3 were more evident in peri-urban rice-dominated areas with less fertile soils. In the study area, only 6% of poor farmers adopted IAA-farming, while this was 42% for intermediate and 60% for rich households. Richer farmers tended to intensify fish farming and seek a more commercial orientation. The major factors why farmers did not start aquaculture were the inappropriateness of technology, insufficient land holding or poor access to extension services, limited farm management, and through a fear of conflicts associated with pesticide use on crops. The main motivations for practising IAA-farming included increased income and food for home consumption from the available farm resources while reducing environmental impacts. Further improvements to IAA-systems can be realized by strengthening nutrient recycling between different IAA-system components while enhancing farming output and safeguarding the environment.

**Keywords:** *Integrated agriculture–aquaculture; Participatory approach; Factor analysis; Nutrient recycling; Vietnam*