

Motivation of farmers in the Vietnamese Mekong Delta to integrate aquaculture in their production system.

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Summary

Major motivation to integrate aquaculture on the family farm was to improve livelihood through efficient use of resources. As such, the pond was often part of a ditch-dike system, allowing also to grow fruits. About 30% of the ponds were in the first place excavated to obtain soil for land elevation and not to raise fish. The majority of fishponds were used to recycle waste; this should be considered by policymakers planning research and extension.

Keywords: Vietnam, farmers' motivations, aquaculture, farming systems, family farms.

Introduction

Research and extension can be better focussed when motivations of farmers for innovating their farming system are considered by policy makers (Brummett & Haight, 1996). In the VMD, better water management, multiple rice cropping, and global market integration triggered off diversification after the wars in 1976 and the political reforms of 1986 (Phong et al., 2004). Hereafter, we present and discuss motivations of farmers in the Vietnamese Mekong Delta (VMD) to integrate aquaculture in the production system of their family farm.

Material and methods

In two of the 7 agro-ecological zones of the VMD (Nguyen et al., 1998), the ecological conditions allow to develop integrated aquaculture agriculture systems (IAA): the fresh water alluvial delta and the mountainous zone. In both zones 3 hamlets were selected for semi-structured interviews: in the delta for having optimal conditions for the integration of aquaculture in farming systems, and in the uplands for having mainly rain fed agriculture. In each hamlet, family farms were classed in three categories of well-being for stratified random sampling of 24 households for semi-structured interviews.

Results and Discussion

In the delta of the VMD 96% of the interviewed farmers had a fishpond and in the VMD uplands only 25%; the pond area varied from 6 to 3000m² with an

average close to 350 m². In the delta, about 50 % of the farms had more than one pond. Only a minority of the farmers excavated their pond to improve the income (Figure 1). In the delta about 40% of the farms raised fish in a pond originally not meant for that purpose; in the uplands this figure was 25%. Three factors enhanced this tendency: (1) the demographic growth, (2) the scarcity of wood for houses with a raised floor induced the need to elevate homesteads (Figure 1), and (3) the introduction of technologies allowing 2 and later 3 rice crops per year made land available for other activities, such as fruit trees which need elevated land to prevent waterlogging. Part of the ponds with fish for home consumption had been made also for land elevation or for water storage before the occupation by the present farmer. In the uplands, some ponds were used mainly to store water for livestock and orchard.

In the delta, since 1976 more than half of the farmers that started to raise fish developed at the same time land for a fruit orchard with a ditch-dike or "raised bed" system (Nguyen et al., 1998, Linh, 2001, Prein, 2002). This includes the group of farmers that mentioned to be motivated by optimal use of their resources (Figure 1); some of those integrate pig on their farm to produce manure for the fishpond. Most farmers were aware of the better spreading of risk and cash income and of more efficient resource use in the IAA systems.

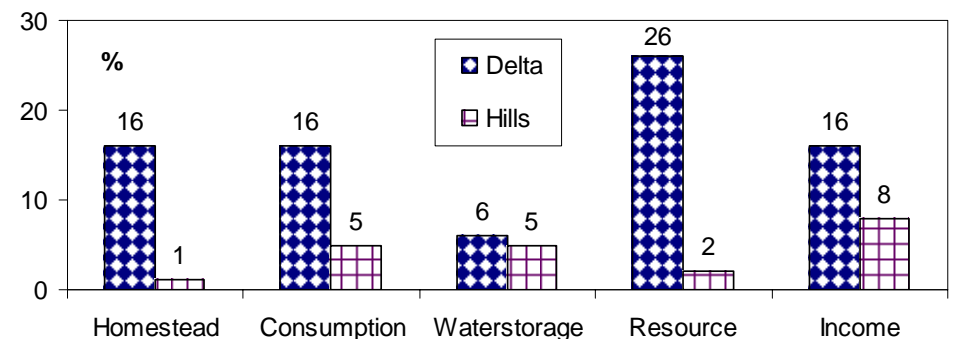


Figure 1. First 2 reasons of farmers in the VMD to dig a pond.

In the uplands, the major reason for not having a fishpond was related to the unavailability of water due to insufficient access to a water source in dry season and / or to inappropriate conditions: sandy or shallow soils (Figure 2). These constraints did not withhold an elder farmer; for some years he transported clay and later he used a plastic sheet to reduce leaching from his small pond to fatten fish in the rainy season. Other reasons for not having a

fishpond, mentioned in the delta also, were related to insufficient capital, knowledge, or land area either at the homestead or in total. To solve the capital constraint, several farmers profited from the demand for soil to construct a road or a homestead to make their fishpond. The distance between the homestead and the pond location was important as farmers did not want the fishpond far from their house for fear of theft and birds. Not all upland farmers were aware of the possibility to grow fish in the rainy season only, a common practice in the uplands of Northern Vietnam (Bosma et al., 2003). The stimulation of technologies for water containment and short production cycles could allow further expansion of aquaculture in the uplands.

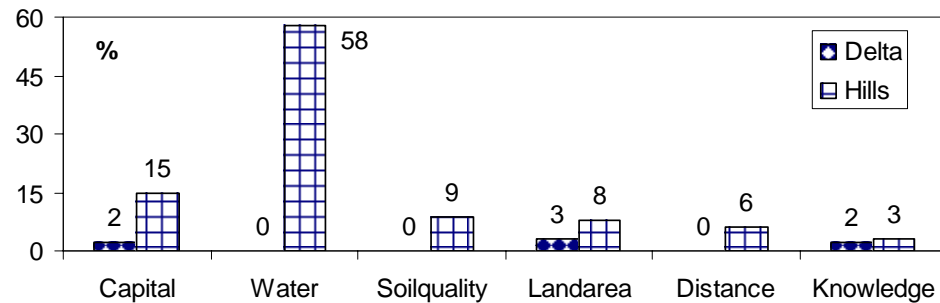


Figure 2. Constraints in the VMD to the integration of a fish pond in IAA.

Two of the interviewed farmers had a nursery and one fattened snakes. Compared to the upland, in the delta almost three times more ponds were stocked with wild fish only and were fertilised on a low input level (Figure 3). These farmers used either the natural fish that were trapped in the pond after the flooding only, or they increased the stocking rate with catches from the river or waterways. Five farmers in the delta had a rice-fish system; one of them started in 1976, others only recently.

Latrine ponds and manure fertilised ponds were more popular in the delta. Using excreta to feed animals was not accepted by the Hieu Nghia Buddhism, practised by part of the population in the uplands. The latrine ponds were stocked with catfish only; most fish ponds were poly-cultures of species chosen for their market value and resources available on the farm. A minority of the fish producers used commercial pellets. The vast majority of fishponds were used to recycle residues: household and market waste, rice bran and excreta from humans, pigs, chickens and ducks.

In spite of more than 30% of the ponds not being excavated with the first purpose to raise fish, about 90 % of the farmers in the VMD produced fish to improve their livelihood. They kept fish to make efficient use of their limited resources including wastes from other components of the family farm. Research and extension services intending to improve aquaculture in Vietnam through innovations that can be adopted widely by farmers, need to consider that fish is mainly used to recycle waste (Brummett & Haight, 1996).

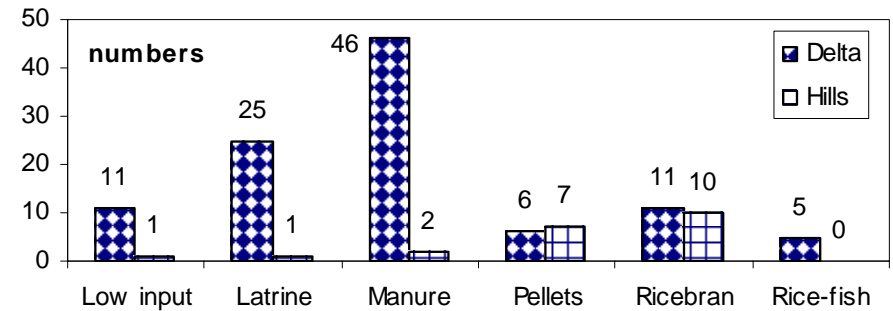


Figure 3. Main feed resources of aquaculture practised in the alluvial fresh-water delta and the uplands of the VMD; the mentioned feed resources were not exclusive and e.g. wastes from fish market could be fed next to pellets.

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