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

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Introduction

We should consider farmers’ motivations to focus research and extension for high rates of innovation. We present farmers’ motivations to integrate aquaculture in rice based systems in the Vietnamese Mekong Delta (VMD). Integrated aquaculture agriculture (IAA) can develop in:

- the fresh water alluvial delta and
- the upland agro-ecological zone.

Conclusions for research and extension policies

In delta 77% and uplands 65% used fish to recyle:

- household and market waste,
- excreta and crop residues.

Farmers choose fish species for:

- market value and
- resources available on the farm

Aquaculture in the uplands might expand through:

- Water containment technologies and
- Short production cycle of fish.

Results

Table 1. Some characteristics of the interviewed VMD family farms.

<table>
<thead>
<tr>
<th>Area (ha)</th>
<th>% farms with pond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homestead</td>
<td>Lowland</td>
</tr>
<tr>
<td>Delta</td>
<td>0.4</td>
</tr>
<tr>
<td>Upland</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Reasons for keeping fish.

- Excavate pond to obtain soil for an elevated homestead.
- Raise fish for homecomsumption.
- Store water for livestock and orchard.
- Improve cash income and spreade risk, through
- Optimal use of scarce (land) resources.

Next to the homestead, farmers needed elevated land to:

- prevent waterlogging of fruit trees; most farmers fish raised in excavated ditches (see picture 1).
- house pig and poultry for manure to fertilise fishponds.

Material and methods

Three hamlets in each zone:

- delta, with optimal conditions for IAA;
- uplands, with mainly rain fed agriculture.

After stratified sampling on well-being, 144 semi-structured interviews for:

- general family farm characteristics and
- motivations for changes in the farm components since 1975.

Fishpond feeding systems

Six types of ponds according to feed resources (Figure 3) of which:

- low input ponds stocked with only natural fish.
- latrine and manure ponds not accepted by one local Buddhism.

Reasons for not keeping fish.

- Insufficient access to a water source or inappropriate soil (upland).
- Insufficient capital; several farmers sold soil for roads or homesteads.
- Land area should be close to farmhouse for fear of theft and birds.
- Lack of knowledge, e.g. on fish raising in rainy season only.

Figure 1. Fishpond feeding systems

Figure 1. Farmers’ first motivation to excavate a pond.

Figure 2. Constraints to the integration of fish ponds in IAA systems.

Table 2. Reasons for not keeping fish.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Delta</th>
<th>Upland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Water</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Soil quality</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Land area</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Distance</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge</td>
<td>58</td>
<td>14</td>
</tr>
</tbody>
</table>