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The Integration of Rice and Surrounding Productions in Commercial Fish Culture System by Family Farmers in West Africa

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Abstract

This article examines the modalities of the integration of commercial fish farming conducted by smallholders in the lowlands of the West African forest area. First, it should be pointed out that the motivation for fish farming of these smallholders is at the origin of a dynamic of dam pond construction, built using their own resources. This fish farming development leans on first kernels of fish farmers who received close and long-term technical support.

Integrations are selected and analyzed. On the scale of the production pond, polyculture based on tilapia (*Oreochromis niloticus*) and Heterotis (*Heterotis niloticus*) illustrates the possibility of combining two animal husbandry practices. Another technique widely used in Guinea and Côte d'Ivoire is the integration of floating rice into dams: this combination of plant cultivation and fish offers mutual benefits. In Guinea, the practice of pig farming on the edge of the pond, in connection with the recent development of palm kernel meal production, is also an interesting case in point. Finally, in Côte d'Ivoire, on the periphery of dam ponds and downstream, different types of crops are grown to benefit from the security of water supply: market gardening, irrigated rice, tree nurseries, etc.

These integrations increase the sustainable multiplication of the agriculture-aquaculture interfaces and thus constitute an interesting means of ecological intensification. They benefit from the great flexibility of family farms, particularly in terms of the predominantly manual labour force. On another level, these integrations reflect an adaptation to the opportunities of the various territories.

Their analysis refers to the need to collect observations at different scales: the productive cycle, the fish farming system (fishponds), the farming system (family farm), the lowlands, the local agricultural network and more generally the agrarian system (territory). The multitude of these scales renders the overall assessment complex. This explains why the benefits of this small-scale fish farming are often poorly described and quantified, or even neglected, despite their great importance and potential.

These forms of integration of fish farming should be encouraged. Collaborative approaches supporting smallholder innovation within territories are a tool for their promotion. Support for national development policies is also a lever for action, as in the case of Guinea, which has chosen this integrated aquaculture by family farmers as a strategic priority in the fight against food and nutritional insecurity and one of its contributions to mitigate global warming.