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The Use of Pesticides in Paddy Rice and Possible Impacts on Fish Farming in Yen Chau/Son La Province, Northern Viet Nam

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Abstract

Within the framework of the Special Research Program “Sustainable land use and rural development in mountainous regions of Southeast Asia” a survey was carried-out in order to describe and assess interactions between paddy fields and fish ponds in Yen Chau district, Son La province (Northern Viet Nam). In the research area paddy fields and fish ponds are closely linked to each other, e.g. by a common irrigation system, which leads water from paddy fields into ponds and vice versa. Frequently occurring mortalities of grass carp (as main fish species in the pond system) lead to the assumption that certain activities carried-out in the paddy fields (e.g. use of pesticides) influence fish health in ponds. In this research the two systems “paddy field” and “fish pond” with all their interrelations are described and it is assessed, whether pesticides might have been the causative factor for the occurrence of grass carp mortalities.

Wholesalers and retailers for agricultural inputs as well as 30 farmers in Yen Chau were interviewed on pesticide availability, indications for their use and application practices in order to estimate their potential impact on the aquaculture system.

Many pesticides used in the region are classified as moderately to highly hazardous according to WHO (World Health Organisation). Even though farmers usually stop the water flow after application of pesticides for one or more days, pesticides may still reach ponds in case of leaching and heavy precipitation. Also by-products from paddy fields, which are used as fish feed (e.g. weeds), may carry pesticides into the pond system.

It is not very likely that the application of pesticides directly correlates with grass carp mortalities in Yen Chau ponds, as mortalities also occur in times when no pesticides are applied. However, pesticides enter ponds by the water flow and/or by feeding of paddy field by-products and they probably contribute to a chronic stress of fish and thereby make them more prone to diseases.

Keywords: Fish production, Integrated Pest Management, paddy rice, pesticides, Viet Nam

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