



Ecologically Integrated Farming System in the South of Vietnam: Rice-Duck-Shrimp Farming in Ben Tre Province

Introduction

Rice and ducks have been 'good friends' of farmers in the Mekong Delta for a long time. Traditionally, farmers in the Mekong Delta planted rice paddies and raised ducks by releasing them into the paddy fields after the harvest to eat residues.

A Japanese farmer, Mr. Takao Furuno, took this traditional Asian farming idea and systematized a method of 'Rice-Duck Farming' in the early 1990s. By applying this method, farmers can grow rice and raise ducks at the same time in the same paddy field. This low cost and labor-saving farming system is very suitable for small-scale and poor farmers. This method has been introduced by a Japanese NGO to Vietnamese farmers in Hai Phong City, Hanoi, and the provinces of Bac Can, Hoa Binh, Son La, Thua Thien Hue, Dong Thap and Ben Tre since 1994.



Figure 1. A farmer, Mr. Nguyen Van Teo in Ben Tre Province. He is a pioneer of Rice-Duck-Shrimp farming

Ben Tre Province is located in the Mekong Delta and is famous for coconut cultivation. Traditionally, farmers in Ben Tre Province planted rice, but recently, intensive shrimp farming has been widely adopted. Now rice fields are covered with ripples from the motors sending air down to the shrimp.

Ben Tre Province is also seen as one of the provinces most seriously affected by climate change in Vietnam. In 2016, most of the paddy fields in Ben Tre Province were destroyed due to salt intrusion and many farmers lost their harvests. The increase in salinity also means there is no fresh water to serve the necessities of daily life and agricultural production. Farmers have had to change and diversify their farming systems to adapt their production to climate change and secure their livelihoods.



Description of the Agroecology system

Small-scale farmers in Ben Tre Province have been applying Rice-Duck Farming since the mid-1990s and found the results good. However, with the expansion of bird flu in 2000s, farmers had to downsize the number of ducks and area of paddy fields they could apply this method to.

Since 2012, Seed to Table, a Japanese NGO, has introduced this method to small-scale farmers in three communes (Thanh Phuoc, Chau Hung, and Long Hoa) in Binh Dai District of Ben Tre Province. The major objective of this activity was to improve food security and increase the income of small-scale farmers.



Figure 2. Ducklings in a paddy field

In target communes, 'duck banks' were set up and managed by the Commune Development Committee (CDC). Each small-scale farmer can borrow 25 ducklings per 1000m² of land to apply Rice-Duck Farming. After one season of rice, the farmer returns their initial loan to the bank to keep the fund sustainable.

When farmers borrow ducklings from the duck bank, Seed to Table's project partner, the Agricultural Extension Center of Ben Tre Province, provides technical training. Fourteen days after farmers sow the rice and the paddies have developed a strong root system, the ducklings can be released into the field and kept there until the time of flowering. Then the ducks will be raised in a hut for another 21 days before being sold at a local market.

A common fear of the farmers is that the ducklings will eat the whole rice paddy. However, in this method, the ducks do not eat the paddies. When the ducklings are released, the paddies and ducklings are almost the same age and height. They will grow together. During this period, the ducklings try to find and eat insects and weeds in the paddy fields. This means that farmers can avoid the use of chemical pesticides and herbicides, and have to do less manual weeding in the rice fields. The costs for raising ducks are also reduced.



Figure 3. Ducks in a paddy field

Duck manure is a good natural fertilizer for rice crops, and allows for a reduction in the use of chemical fertilizers. The paddling of the ducks in the rice fields provides natural stimulation and aeration, which in turn increases the availability of nutrients like nitrogen, phosphorous and potash to the rice. Rice-duck farming also helps to reduce the emission of methane gas from rice fields, and thus contributes towards the prevention of the global warming.



Outcomes of the practices

From the results in Ben Tre Province, farmers who applied rice-duck farming were able to reduce the use of chemical pesticides by 40% and saved 200,000 VND/1,000m² in labour force for manual weeding. They were able to return their loan to the duck bank and earn additional income to raise the next generation of ducks.

Farmers are always innovative. One of the farmers in Thanh Phuoc commune discovered another integrated farming method. It was Rice-Duck-Shrimp Farming. After the rice harvest, farmers noticed the appearance of shrimp in their fields. They had the idea to raise shrimp in addition to ducks in the rice fields. Thanks to the tide, which leads natural fish and shrimp into the paddy field, it costs the rice grower less to stock different breeds. Farmers are now benefitting from three or more products in one system, instead of two as before.

Both of the integrated farming systems introduced in the south of Vietnam are now being applied by farmers as sustainable farming systems to improve their incomes. They also have significant benefits to the environment that not all farmers understand at a glance.



Figure 4. Exchange of experiences among small-scale farmers

Message from farmer to farmers

“Rice-Duck or Rice-Duck-Shrimp farming systems involve very easy and simple techniques for small-scale farmers to apply. The ducks help us to reduce pesticide and chemical fertilizer usage. These farming systems bring economic benefits for my family and improve our food security.”

— Mr. Teo, a pioneer of Rice-Duck-Shrimp farming in Ben Tre Province