

TECHNOLOGY TRANSFER TO RICE PRODUCTION IN THE MEKONG DELTA'S FARMING EXTENSION

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1. Role of the farming extension system in technology transfer to rice production in the Mekong Delta

Since 1998, the modernization process of rice production in the Mekong Delta has recorded significant achievements, especially in changing rice seeds, production mechanization and diffusion of new technical process. The short-term rice seeds have made great contributions to reclaiming, increasing crops and reaching the rice growing areas from 2,444,800 ha (1989) to 3,986,700 ha (1999). In particular, the high quality seeds have been widely used and helped boost rice production for export.

From 1996 to 1999,

tion, production mechanization has made progress. The amount of tractors in the Mekong Delta soared 5.3 times and permitted plowing mechanization to account for nearly 100%. The sowing equipment has been applied to save seeds and reduced costs of production. Husking machinery undertakes some 80% of the Delta's rice output. Twenty percent of rice output is dried with innovated technology of the Agriculture and Forestry University.

Chemicals utilization in rice production has been also speeded up. The amount of used fertilizer reached 350 kg per hectare, higher than the world's average. The appropriate process of fertilizing has saved a lot of production costs and

the biological environment.

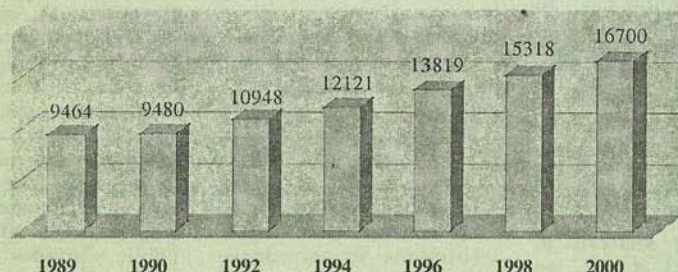
The technical advance application has promoted the Delta's intensive farming and given impetus to high growth in productivity, quality and efficiency. This is a decisive factor helping Vietnam to become the world's leading rice exporter.

The farming extension system plays an important role in those changes. The state agencies for farming extension in the Mekong Delta are organized at three levels: province, district and village. These bodies have permanent relations with volunteer farming extension units, establishing a farming extension network across the Delta. In recent years, this network has implemented the role of

iversity, Cần Thơ University to receive, test, multiply and transfer seeds to farmers. Over the past 10 years, farmers in the Delta have been given tens of new high yield seeds through the farming extension channel. Typical in these activities is the Cần Thơ Farming Extension Center. It has established the three-level seed multiplication system (the Rice Institution – the center – high skilled farmers) in cooperation with the Mekong Delta Rice Institution. The system operates well, and provides seeds not only to Cần Thơ Province but also other neighboring provinces and for export. The system is also the key channel to transfer new technology process, especially transfer of biological fertilizers and diffusion of appropriate fertilizing in line with rice growth, IPM process. In these activities, the center has received support and assistance from the Cần Thơ University, the Mekong Delta Rice Institution, enterprises and international organizations (IRRI, DANIDA...).

In addition, the achievements of rice farming mechanization in the Mekong Delta have boosted activities of agricultural extension such as receiving, diffusing and funding in transferring equipment and machinery for sowing, reaping, husking, and drying rice. Typical in these activities are the centers for farming extension in An Giang, Cần Thơ and Đồng Tháp. In particular, some centers

Figure 1: The Mekong Delta's rice output in the 1989-2000 period (1,000 tonnes)



Source: The General Department of Statistics

more than 7,000 irrigation projects were built and the number of pumping machines rose 3.8 times. This has enhanced irrigation for 78.9% of rice area, higher than that of ASEAN countries. In addition,

increased rice output. Over the past 10 years, more than 100 kinds of agricultural medicine have been used. The Integrated Pest Management (IPM) program has been implemented and helped protect

linking scientists with farmers, especially in rice production.

The farming extension centers makes regular contacts with the Mekong Delta Rice Institution, Agriculture and Forestry Uni-

have cooperated with banks and international institutions including DANIDA, IRRI, FAO...to grant loans to farmers in building rice-drying furnaces, warehouses and husking shops. Furthermore, the farming extension centers also implement programs of diffusion, demonstration, and training with the aim to improve farmers' knowledge.

2. Some conclusions of the model transferring technology via the farming extension system in the Mekong Delta

Based on the organization of two-way information network, the Mekong Delta farming extension centers permanently seize real demands to set up agricultural extension programs, seek technology resources and transfer them to farmers. The centers' technology transfer is mainly non-profit activities funded by the Government and some international institutions. The process of technology transfer is implemented following the steps: (1) Making tests with participation of high skilled farmers, farming extension clubs, or cooperatives; (2) Demonstrating technically and involving farmers to the model of technical advance application; (3) Organizing training courses, workshops, and discussions between farmers and farming extension workers, and publishing technical guidelines.

Farmers in the Mekong Delta receive technical advances through the farming extension network in three main models as follows:

Model "Direct transfer from the center to farmers"

This model often involves cooperatives, farming extension clubs and high skilled farmers who act as both recipients and a component of the trans-

ferring system. The local mass media and organizations also contribute to knowledge diffusion and encouragement of farmers' application. Most of the state-run farming extension programs in the Mekong Delta follow this model, typically the programs improving farmers' knowledge, changing rice seeds, implementing IPM, and applying post-harvest technologies. These farming extension programs often receive assistance from the Mekong Delta Rice Institution, Cần Thơ University and Agriculture and Forestry University...

Model "Farming extension system - financing units - farmers"

In this model, the farming extension agency calls for funding of banks and international institutions to farmers' technical application. Major donors to farming extension activities in the Mekong Delta include the Bank for Agriculture, FAO, and DANIDA. The main areas funded are IPM diffusion, improvement of farmers' knowledge, and application of post-harvest technologies. Cần Thơ, An Giang, Đồng Tháp and Vĩnh Long are typical provinces in these activities.

Model "Scientific institutions - farming extension agencies - farmers"

In this model, scientific institutions create or find technology resources and farming extension agencies receive, test and transfer them to farmers. Permanent participation of high skilled farmers, cooperatives, farming extension clubs, farmers' associations, mass media are important factors for the model success. Technical advances transferred include new rice seeds, technical processes, equipment, fertilizer and agricultural medicine. Typical activities in this model include collaborations between the Cần Thơ University and the An Gi-

ang farming extension center in the process of proper fertilizing, between the Mekong Delta Rice Institution with the Cần Thơ farming extension agency in organization of three-level seed multiplication; and between the South Agricultural Science Institution with the Đồng Tháp farming extension agency in transferring new rice varieties.

3. Problems to the Delta's farming extension system and solutions

Although the Mekong Delta's farming extension system is growing and asserting its important role to the regional agriculture development, it remains certain shortcomings. First, it faces an urgent shortage of farming extension workers. In 1999, a farming extension center employed 28 workers and only half of this workforce involved in technology transfer. The army of workers have to undertake many tasks in various fields (cultivation, husbandry, fishery, and forestry). In districts, a farming extension station has 12 workers who both instructs local farming extension networks and implements technology transfer. Given that situation, the Delta's army of farming extension employees often overwork.

In addition, the professional skill of farming extension workers remains low. The survey in Cần Thơ and An Giang Provinces reveals more than 50% of them have not yet graduated from secondary schools. Most of farming extension workers in the Mekong Delta have not been trained systematically. They cannot meet qualifications of a worker, that is, they must be teachers, friends and servants of farmers. On the other hand, the working equipment of the farming extension system is both inadequate and obsolete. Most of employees in districts and

villages go to work by bicycle. Many farming extension stations do not have computers. Therefore, their performance is limited. Furthermore, their average wage is VND300,000 per month while they must undertake a lot of work. The wage of part-time workers is also lower. This is one of reasons for declining motivation of farming extension workers in the Mekong Delta.

This situation requires effective measures to strengthen the farming extension system and boost up farming production in the Mekong Delta. In our opinion, we should attach importance to the following tasks:

First, the number of farming extension workers should increase, especially for districts and villages. Then, the farming extension centers establish departments for regions specialized in growing rice, fruit and aquaculture. These departments implement two functions at the same time: transferring technical advances and researching into the economic effects of technical advances. This will overcome the system's current deficiencies of incomplete technology transfer.

Second, the network of farming extension stations should be perfected. In focal rice growing districts, the farming extension station will set up the technology transfer group including 3-4 workers with sufficient economic and technical knowledge and skill. In focal villages, a worker should carry out the task of rice farming extension. Their skill includes knowing farmers' requirements and developing programs of farming extension.

Third, the most important task of farming extension agencies is to connect farmers with technology suppliers based on using two-way information network over the Mekong

Delta. Then, the agency will step by step represent farmers to pose research problems to domestic scientific institutions. The agency's activities should be improved to develop the agency into a hub of technology transfer. This role is indicated in positive planning and suggesting

collaboration of other agencies and institutions.

Fourth, farming extension workers' professional skill must be promoted, especially skills of making contacts with farmers, communicating knowledge and technique to farmers in line with current conditions of the Mekong Delta.

Therefore, the function of the farming extension agency is to play the key role of enhancing the Delta farmers' scientific and technical knowledge and skill.

Fifth, the farming extension programs must be adequately implemented from detailed planning, as-

signing tasks, preparing budget, and inspecting implementation to evaluating results. The relevant agencies must reject determinedly imposing programs of farming extension which are not suitable to local conditions. ■

Model of technology transfer via the Mekong Delta's farming extension system

