

CHAPTER 1

INTRODUCTION

1.1 Background

Vietnam rapidly shifted from being a net rice importer prior to 1987 to become the second largest world rice exporter by 1995. Paddy output reached 34.1 million tones in 2002. Compared to 1987, paddy output increased more than two times by 19 million tones. Rice export volume increased yearly steadily to over three million tones, and in 2002 reached 3.2 million tones.

Rice is the most important staple food crop in Vietnam. It occupies 4.2 million hectares, in which Red River and Mekong River Delta are the main rice production of the country. Mekong River Delta well known as the “rice bowl” of Vietnam. With approximately 4 million ha of natural areas and around 2 million ha of cultivated rice areas, the Mekong River Delta is the great potential for growing of plants and livestock, especially is irrigated lowland rice. The delta has produced about 17 million tons of paddy rice annually, accounting for 51% of the total paddy rice production of the country, and contributing to 80% rice export of Vietnam (Can, 2002). Can Tho province is located in the center of the Mekong River Delta. Agricultural area in Can Tho province is 254,000 ha, in which rice cultivation area is 180,000 ha. There are three main rice seasons in Can Tho province; dry season (winter-spring) covering 180,000 ha, early wet season (spring-summer) occupying 173,000 ha, and late wet season (summer-autumn) comprising 102,000 ha in 2003. Row-seeding is practiced in both dry and late wet season, and its cultivation rice area under row-seeding practice in 2003 of Can Tho province was 18,592 and 15,114 ha in dry and late wet season, respectively (Can Tho Department of Agriculture).

There was a change in field establishment after the introduction of modern rice varieties IR5, IR8 in 1968. The traditional transplanting was changed to broadcasting or direct seeding techniques. Direct seeding of rice has quickly widespread because it

reduced farm labor and production cost. Farmers in the Mekong River Delta use these four typical direct seeding techniques in different ecosystems, namely zero-tillage seeding, water seeding, dry seeding, and wet seeding (Can and Xuan, 2002).

Heavy seed rate is a common practice of direct-seeded farmers in the Mekong River Delta. Seed rate is normally ranged between 200 to 250 kg per ha. It gives two major disadvantage, namely; consumption of large amount of seeds and more problems of insects and diseases (Tan, 2000).

Row-seeding by row seeder is a new technology for rice production of Can Tho province in 1995. The advantages of row-seeding have been identified through a series of experiments and demonstration sites indicating that row-seeding can reduce seed rate, insecticide and herbicide use, fertilizer use, and rats damage (Luat et al., 1998). However, the evaluation of this technology on farmer field has not been carried out yet. The purpose of this research is to evaluate the efficiency and impact of row seeding on rice growers' income in Can Tho province.

1.2 Statements of the Problem

Although rice production of Vietnam in general and the Mekong River Delta in particular has increased steady, the rice growers are facing a number of problems, namely; low income and environmental problems (Can Tho Department of Agriculture).

The majority of farmers of the Delta grow three rice crops per year, but their income is decreasing. The increase of the paddy output is a resulted of the application of modern rice varieties which give high yield and short duration, and changing from single crop per year to double or triple crop per year. These modern rice varieties require high rate of chemical fertilizer. In addition to multiple crops that have led to occur a lot new pest used more and more pesticide. Therefore, the rice growers' income is declining due to the increase of rice production costs.

The environmental problems that are causing a lot of constraints for rice production and community health consist of overusing agro-chemical, soil acidification, and saline intrusion.

The reclamation of the depression area of the Mekong Delta for rice production has been critical in allowing a rapid increase in national rice production (4.6 annual growth). This reclamation with digging a lot of new canal through acid sulfate soil area to drain off floodwater has released and polluted a large part of the Delta. On the other hand this reclamation along with dredging and improving rivers and creeks system that has enlarged more the wide of river led to intrude seawater at the end of dry season when the rainfall is the smallest.

Moreover, the degradation of the soil due to the multiple crops, the fluctuation of climate conditions, the low price of rice output at the harvesting peak also are important problems that are affecting for the rice growers in the Mekong Delta, especially for the poor farmers.

To solve the above problems both the government and scientist at research institutes and universities have issued a lot of way not only policy side but also technology renovation.

In terms of policy, the government issued many policies aim to encourage the farmer in direction sustainability. First, the policy of tax reduction in land use for the poor farmers and remote areas, especially government just gives new law which is fully tax free for rice production in 2003. Second, the government also supplies the credit with more number of money and low interest rate (1 to 5 percent a year). The last, the farmers was encouraged to conduct the integrated farming that rice was grown in combination with aquaculture such as shrimp, fish, duck and livestock in the model such as rice-fish, rice-shrimp, and rice-duck. Moreover, the quality of rice output also pays attention. The area that is suitable for rice production was planed for producing high quality rice.

In terms of new technologies, local authorities, extension workers, and scientists have applied and diffused a lot of new advanced technology. First, new variety that gives both high yield and quality, aiming to increase rice growers' income. Second, Integrated pest management (IPM) that reduces chemical use, leaf color chart that was used to apply the dose of suitable nitrogen in order to reduce excessive nitrogen fertilizer that is caused environmental pollution. Especially, the row-seeding

technology that helps the farmers saving the seed rate (lower than 50 percent conventional method, broadcasting), reducing chemical and fertilizer use, increasing the yield. Therefore, row-seeding reduces production cost and increases rice yield. Moreover, the environmental pollution also decreases due to reducing the amount of chemical and fertilizer use.

1.3 Objectives of the Study

The study is designed to attain the following objectives;

1. To gain a better understanding of the existing farmer's practices on rice production systems in Can Tho province of the Mekong Delta.
2. To evaluate crop performance and to compare the economic effectiveness between two sowing methods (row-seeding and broadcasting) using the profitability approach, and Cobb-Douglas production function.

1.4 Usefulness of the Study

This study will provide information for rice growers and extension workers about the effectiveness of row seeding technology. It is hoped that it will be useful information for extension workers, researchers in setting extension activities aim to diffuse row seeding method, especially toward the poor farmers.