CHAPTER 1
INTRODUCTION

1.1 Background of the study

Tea (*camellia sinensis*) is one of perennial crops, which has been planted in Vietnam since 1885. Vietnam has an advantage of favorable climatic and soil conditions for growing the plant. Tea has been grown in specialized areas. The country produces averagely 150,000 tons and exports 45,000 tons of processed tea annually, obtaining the exporting value of US$140 million (Vietnam Tea Association, 2002). Tea has been developed widely and popularly in 6 agro-ecological regions, in which, the North Mountainous and Mid-hill Region have the largest areas under tea and produce 65 percent of tea output of the country. In these areas, tea growers have a lot of experience and skills on tea farm practices.

The North Mountainous Region (NMR) consists of 13 provinces, namely Quang Ninh, Lang Son, Cao Bang, Bac Kan, Bac Giang, Thai Nguyen, Ha Giang, Tuyen Quang, Lao Cai, Yen Bai, Lai Chau, Son La and Hoa Binh. The region has the total area of 9,352,720 ha, accounting for 28.2 percent area of the nation. The total population of this region is over 8 millions peoples, distributed into 43 ethnic minorities (National Institute of Agricultural Planning and Projection, 1999a). Three fourths of land is mountains that create the diversification of climatic base, i.e., various sub-ecological zones including tropical and semi-tropical sub-zones. These zones are characterized by coldness in lowland and temperateness in highland. Annual rainfall ranges from 1,600 to 2,400 mm that generate abundant run-off water to satisfy productive and domestic demands for water in the region. The region has main rivers, namely the Da River, the Thao River and the Lo River. NMR has played an important role in formation of Red River Delta Region, as cradle of paddy rice civilization in Vietnam. Since specific geographical location, this is also region owning protected forest and maintaining the environment for over 30 million people who are living in Mountainous, Mid-hill and Red River Delta regions.

In the region, tea industry plays an important role in economy (35% share in GDP) and in hunger alleviation and poverty reduction. It is proved that exporting value of tea is obtained at around US$30 million, next ranked positions are anise with exporting value of US$20 million, and cinnamon with average exporting value of US$9 million (National Institute of Agricultural Planning and Projection, 1999a).

Tea has a comparative advantage with other crops in terms of economic efficiency and environmental protection. In the same soil type, profit per ha of tea is higher than other food crops (upland rice, corn, sweet potato, manioc), annual crops (peanut, soybean) and coffee, but less than fruit crops. In addition, tea is grown as contours hedges to anti-erosion well and preserve ecological environment. Furthermore, tea production and processing involve considerable number of labor. For instance, new-plantation needs 200 man-days per ha; and harvest requires 270 man-days per ha. Besides, labor requirement for processing tea is also high, i.e., processing black tea needs 57 labors per ton of product, processing green tea needs 57 labors per ton of product (National Institute of Agricultural Planning and Projection, 1999b). Consequently, government has the national plans to invest and promote tea sector in the region, i.e., expansion of new-planting area and replacement of old tea gardens.

Recently, it has been suggested that conventional tea farmers in the region should convert their tea gardens into organic tea production by changing farm practices and obtaining organic certificates from the certifying organizations, i.e., the Organic Agriculture Certification Thailand (ACT) and the Vietnam Organic Agriculture Campaign Association (Foodlink). Organic agriculture required that chemical fertilizer and insecticide should not be used to ensure high quality products, as a result, chemical residue is reduced in the organic products.

The International Cooperation for Development and Solidarity organization (CIDSE), a NGO in Vietnam, has introduced to tea farmers in the region about organic farming practices for several years. The organization has conducted many activities in agriculture and community development in Vietnam. Through training courses and funding, it has encouraged tea farmers in the region to convert their conventional tea gardens into organic tea gardens after having completed conversion

time of 18 months, according to ACT standards (Organic Agriculture Certification Thailand, 2001). After that, they produce and sell organic tea products to Hanoi Organics organization or sell to free markets. Mid-hill Region also has conventional tea and organic tea production in parallel.

The Mid-hill Region (MHR) includes 4 provinces, namely Bac Ninh, Bac Giang, Phu Tho, and Vinh Phuc, in which, Phu tho has the largest tea area and produce most of tea. Topography is different from the North Mountainous Region, i.e., elevation is around 350 - 400 m above sea level and 200 m less than the NMR. In the region, moderate ingredient land and hill -sides are allocated to plant tea, a traditional and valued plant.

The region had been known because of its large tea hills. Tea gardens were laid in hill- sides and under forest trees' canopy, creating marvelous scenes for the region. Moreover, famous tea labels, i.e., the Phu Tho tea, are followed from generation to generation. Annual gross value of tea shares 20 -30 % in GDP of the region; it implies that tea is one of most important crops in regional agriculture (Phu Tho Department of Agriculture and Rural Development, 1999).

In the vein of Thai Nguyen province (NMR), organic practices have been introduced into Phu tho province (MHR) by the CIDSE organization. Thanks to training courses on organic farming practices, initially, tea farmers have take part in the organic tea production campaign. They are, step by step, applying organic the farm practices for their tea gardens in accordance with the IFOAM's standards of organic agriculture (IFOAM, 2001).

Organic production campaign in the region is integrating into a trend of production and consumption of organic products over the world. Organic agriculture has popularly been developed in developed as well as developing countries, i.e., European countries, China and India. European countries have conducted organic farming for many crops, i.e., wheat, vegetable, apple, and livestock (Lampkin and Padel, 1994), while China and India have been specialized to produce and export organic tea products.

An advantage of organic tea production is its products are sold in domestically urban markets at premium prices. In addition, a great deal of high-income people is present in Reform 'Doi Moi' period in Vietnam, as a result, demand for organic tea is increasingly raised.

In general, organic tea area of the region, at present, covers a small proportion of total tea area, likewise number of organic tea farmers take an account for 2 - 3% of the total tea growers. However, number of the converted tea farms is greater than organic tea farms, it has proved there is a trend for converting conventional tea gardens into organic tea gardens. For example, IPM tea farmers and converted organic tea farmers have taken an account for 25 % of tea growers in Thai Nguyen (Thai Nguyen Department of Agriculture and Rural Development, 2002) and 23% of total tea growers in Phu Tho province (Phu Tho Department of Agriculture and Rural Development, 2002). Number of organic tea farmers involved in training courses on organic production and carried out organic farm practices in their tea plantations is around 80 in Thai Nguyen province and 65 in Phu Tho province under the project of the International Cooperation for Development and Solidarity organization (International Cooperation for Development and Solidarity, 2000).

1.2 Statement of problems

Vietnam is one of tea-producing countries, exporting tea over the world (the 8th position in 2001) (Hien, 2001), the local tea sector is still facing severe problems such as a large number of old tea gardens, increasing cost of production, falling of export prices and reduced a share in the world tea market (National Institute of Agricultural Planning and Projection, 1999b). To overcome these, government has programs, i.e., replacement of old tea gardens, use of improved hybrid tea clones namely TRI777, A1, LPD1, LPD2 (Tea Researching Institute, 1999), and supports of credit to promote tea sector, in particular, in the North Mountainous and Mid-hill region.

The North Mountainous and Mid-hill Region is one of 7 agro- economic regions, having the largest tea area (over 65% of total area under tea) and producing

the most tea nationwide (Kham and Hiep, 1996). This is region having both organic and conventional tea production (International Cooperation for Development and Solidarity, 2001). Tea is major crop as backbone of regional agriculture, having the exporting earns of US$35-40 millions a year. The exporting earns of tea is ranked only after fruit.

In tea production, efficiency and productivity are still at low level. Tea productivity of Vietnam in general and of the region in particular is lower than other tea-producing countries, i.e., in Sri Lanka, average tea yield of fresh tea was over 10 tons ha^{-1} in 2001 (Basnayake and Gunaratne, 2002) which was three times compared with yield of Vietnam.

The situation would not be improved unless tea growers new-plant tea, improve technical efficiency, as well as have another alternatives, in which, organic tea production may be potential alternative. Currently, this alternative has been considered as way of raising income for small group of tea farmers in NMR and MHR. However, to develop and expand more widely organic production within and outside NMR and MHR, its feasibility should be studied.

In general, prospective of organic tea products is promised in terms of market, production and environmental protection. According to FO.Litch (2002), market on conventional tea has been stagnant and organic tea consumption is new increasing trend in developed countries, i.e., EEC countries. In additional, organic farming is friendly with environment that is aspect concerned by Vietnam. Current report supposed that organic farming is new trend in modern agriculture and is especially gentle on the environment - this is good for nature, the producers and consumers of this food. The European governments pay increasingly an attention to organic farming due to less and not impact on environment and having high quality products that are preferred by consumers; therefore, they have policies of supporting in credit, technical assistance. Some countries in Asia have exported several organic products, i.e., India has exported increasingly organic tea year by year (Rudy, 2000).

Vietnam has conducted informally organic techniques for some crops such as rice, vegetable, fruit and tea. In which, the techniques has been applied for tea crop in NMR and MHR. To implement this in the best way, local authorities have the collaborations with CIDSE, SNV and EEI (German Technical Cooperation, 2001).

Organic tea products may be exported to the developed countries in the future, while it is not clear about potential and feasibility of organic tea production in the regions. Currently, the process of conversion from conventional tea into organic tea has occurred slowly in the contrary expectation. What are factors and causes of the problem? Perhaps, organic farming is not supported; or implications from government, or technical guidelines is not adequate.

Information and recognition of organic farming in general and organic tea in particular is lacked of in Vietnam. It can be proved that there are completely a few researches on organic agriculture and formal attentions to organic farming. For instance, clean and safe-chemical vegetables received investment and technical supports from government side (Ministry of Science, Technology and Environment, 1999) while other crops such as tea were organically developed by funds and supports from NGOs.

Even though organic farming has potential to provide benefits in terms of environmental protection, conservation of non renewable resources, improved food quality, reduction in output of surplus products and the reorientation of agriculture towards areas of market demand (Lampkin and Padel, 1994) but tea farmers, at present, have no formal support and development legislation framework, therefore, they can not developed dramatically organic tea areas. Especially, they need a lot support of techniques and farm practices on organic production. If they only have some assistances from small NGOs, they also develop the organic products for niche markets and certain consumption focal points and not able to export whilst trend of organic tea exporting appeared in some countries, i.e., India, China.

For decision-making processes at farm and governmental levels, in circumstances of tea farmers in search of new alternatives for their tea farms to get

high profit; and furthermore, government and tea sector organizations are in desire of information and scientific basis on feasibility of organic tea development. The study should be necessary to satisfy above mentions.

The questions raised for the study are: (1) what differences and similarities are between organic and conventional tea production systems in NMMR, in terms of farm practices, gross margin, income, physical yield, farmers' perception, processing and marketing practices, factors affecting on yield of tea, and mean technical efficiencies of individual tea farms; (2) Furthermore, whether tea productivity of farm can be improved with/without additional inputs or not in both production systems and how possibilities of technical efficient improvement of tea farms are in the region.

1.3 Objectives

Overall objective of the study is to explore two systems, conventional and organic tea production, in North mountainous and Mid-hill region, regarding with production, processing and marketing practices. The specific objectives of the study are as follows:

1. To examine and compare the organic and conventional tea production systems in the study areas
2. To determine and compare the factors affecting the yield of tea in both production systems.

1.4 Significances of the study

To preserve environment and ensure farmers' and consumers' health as well as to get high productivity and benefit from planting tea in the potential areas of tea production are often interested by tea smallholders and tea sectors. Organic tea products can be exported in the future and bring tea growers high income. In particular, foreigner consumers need to have high quality tea products; at least, they make their health better.

In addition, to improve productivity but not to increase cost, at present, optimal combination of inputs is necessary and interested by tea farmers. In integration tendency, reduction of productive cost will has an important role in competition around world tea market. Vietnam has the point of view to reduce energy and productive cost in production to have good products and compete successfully in agricultural markets over the world.

Productive efficiency of tea sector needs to be researched more and seriously not only by particular Tea Researching Institute (TRI) but also by other research institutions. The study contributes into providing more information and quantitative results, which will recommend and formulate implications to government and concerned organizations for tea development. Government and tea sector can get ideas to develop organic agriculture in general and organic tea in particular.

The results of the study can help farmers know how to change farm practices, get the benefit from growing tea, to protect environment and go towards organic agriculture. The study also can help tea smallholders know more possibilities of technical efficiency improvement for their tea farms, in both conventional and organic tea productions. Tea smallholders concern the improving technical efficiency to obtain the best productive performance. They can reference the ideas and the research results to improve the technical efficiency of their tea farms, including conventional and organic tea farms in two selected study sites.