

CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Conventional and organic tea systems were compared in order to explore the feasibility of organically tea development in NMMR. It was found that there were significant differences between these systems in terms of farm practices, production and processing cost and gross margin, processing and marketing. The results indicated that difference from kinds and amount of fertilization, and labor requirement for each system were existed. In conventional system, synthesized chemical fertilizers i.e. nitrogen, potassium, phosphorus were applied, in contrast they were not applied in organic tea system. Amount of manure applied in conventional tea farm was less than that in organic tea farm. Labor requirement for conventional farm was less than this for organic farms, since in organic farm; some activities such as pest control and fertilizer application need more labor than this in conventional farm. Chemical cost in conventional system was higher than one in organic system, due to in organic system, chemical such as bio, herb contents, botanical, palaroys were inexpensive, used to control pest and treat tea diseases.

In comparison of yield and gross margin, it was found average yield of organic fresh tea was lower 136.5 kg ha^{-1} than that of conventional tea, but as compensated, its price was as one a haft time as conventional tea price when tea farmers sold fresh tea, and two times when they sold a processed tea to Hanoi Organics organization. As a result, its net margin was three and haft times much more than that of conventional tea system. Processing and marketing practices were differed from each other between two systems, i.e., most conventional tea was processed in tea factories while organic tea was only processed in family-scaled units. Processing cost for 1 ton of green tea was higher this of 1 tons organic green tea, since in tea factory costs were higher these in family-scaled tea workshop, such as machine depreciation, management fees, and taxations.

Comparative study in processing and marketing showed that most conventional fresh tea produce (80%) manufactured in tea factories. while organic fresh tea was process in family scaled workshops. Economic comparison in term of processing cost, the cost conventional tea processing was higher than one of organic system, due to in tea factories, management fee was higher than one in organic (17.8%). There were differences in final products, in conventional system, were green and black tea, whereas in organic system, the product was organic green tea. The result indicated that processing capacity of conventional system was higher than one of organic system due to difference of processing scale. Regarding marketing, difference of marketing channel conventional system, 80% conventional tea farmers sell fresh tea to tea factories, 20% conventional tea farmers processed their tea products, then sold in free market, while organic tea farmers processed in family scaled workshops, then sold 50% in free market and 50% by prior contracts. At present, consumption of conventional tea was higher so much than consumption of organic tea. Consumer objects different between systems appeared that high-income consumer for organic system, but wide of consumer for conventional.

According to the results obtained from the stochastic frontier estimation, the average technical efficiency of conventional and organic tea farms by the Cobb-Douglas models were 78.6% and 84.6%, respectively. This indicated that there was scope of further increasing the yield by 21.4 and 15.4% for the given levels of inputs. From the factors considered which affected technical efficiency, age of family head, education, training, type of clone, type of propagating materials were significant at least 10% level. According to the results, older tea farmers appeared to be more efficient than younger farmers, this was clearly apparent in conventional tea farms but less in organic tea farms. This may be due to their good managerial skills, which they have learnt over time. Therefore the young tea farmers should be encouraged to work with elder farmers. However, in organic tea farms, older and younger tea farmers had not different from organic tea farming experience. Result also indicated that educated tea farmers were found to be more efficient than the uneducated. This may be because their knowledge, gained from education has provided them a background to take correct decisions. It would be easier for them to grasp the information provided them

by the extension officers. Therefore it was necessary to increase educational facilities in the areas. The negative coefficient for clone indicated that the usage of hybrid clone was efficient. It suggested tea farmers in both conventional and organic farms should use hybrid tea in newplanting. The negative coefficient for type of propagating materials in conventional tea farms, indicated that conventional tea farmers applied vegetative propagation were found to be more efficient than others who used seedlings. However, it was only suggested to conventional tea farmers but not for organic tea farmers.

8.2. Recommendations

Given the aforementioned findings, a comprehensive policy, which has to encompass a broad framework, is needed to stimulate adoption of technologies and technical improvement. The following policies should be formulated in order to develop tea production in both conventional and organic systems in Thai Nguyen and Phu Tho provinces as well as in North Mountainous and Mid-hill Regions.

1. Organic tea production had potential and feasibility to develop in North Mountainous and Mid-hill Regions in terms of ecological, soil and climate condition as well as farmers skills. To develop adequately organic tea production, it is necessary to overcome the factors affecting it, in details, the following factors need to be considered the most, adequate distribution of organic fertilizer to tea farmers, in particular in Phu Tho province, knowledge on organic farming techniques, access to certifying organizations, therefore major solutions can be addressed to the problems. Tea farmers should be encouraged to contact the Biological Center for getting organic fertilizer, strengthen the knowledge on organic farming through opening training courses. This could be done under sponsorships of non-profit organizations and government. Government should also create the favor conditions in terms of legislation for establishing certifying organizations of organic products, and organic standards according to IFOAM.

2. Land is one of components (land and yield) affecting conventional and organic tea production. The government should strictly implement the law of

agricultural land to avoid shifting agricultural land to other uses, especially for building house in rural areas. Related to tea land size, the study suggested that selected conventional tea farms should not expand area for production, alternatively, convert into organic farming or replace the old tea gardens by newplanting tea in their existed tea land sizes. In contrast, for sampled organic tea farms, tea land size should be expanded.

3. The increase in yield has mainly been attributed to the recent adoption of new technology. The government should promote the expansion of hybrid tea through subsidy for breed producers and farmers, and sustainable investment on agricultural research and development. It should be considered to use hybrid and improved tea varieties according to suggestion of TRI such as PH1, TRI777, LDP1, LDP2 and A1.

4. The gap between actual and potential output is still large, in conventional tea farms. Therefore, transferred modern varieties, and techniques should be accompanied by technical assistance. Likewise, international and non-profit organization can assist to develop organic movement through organizing training courses concerning organic techniques.

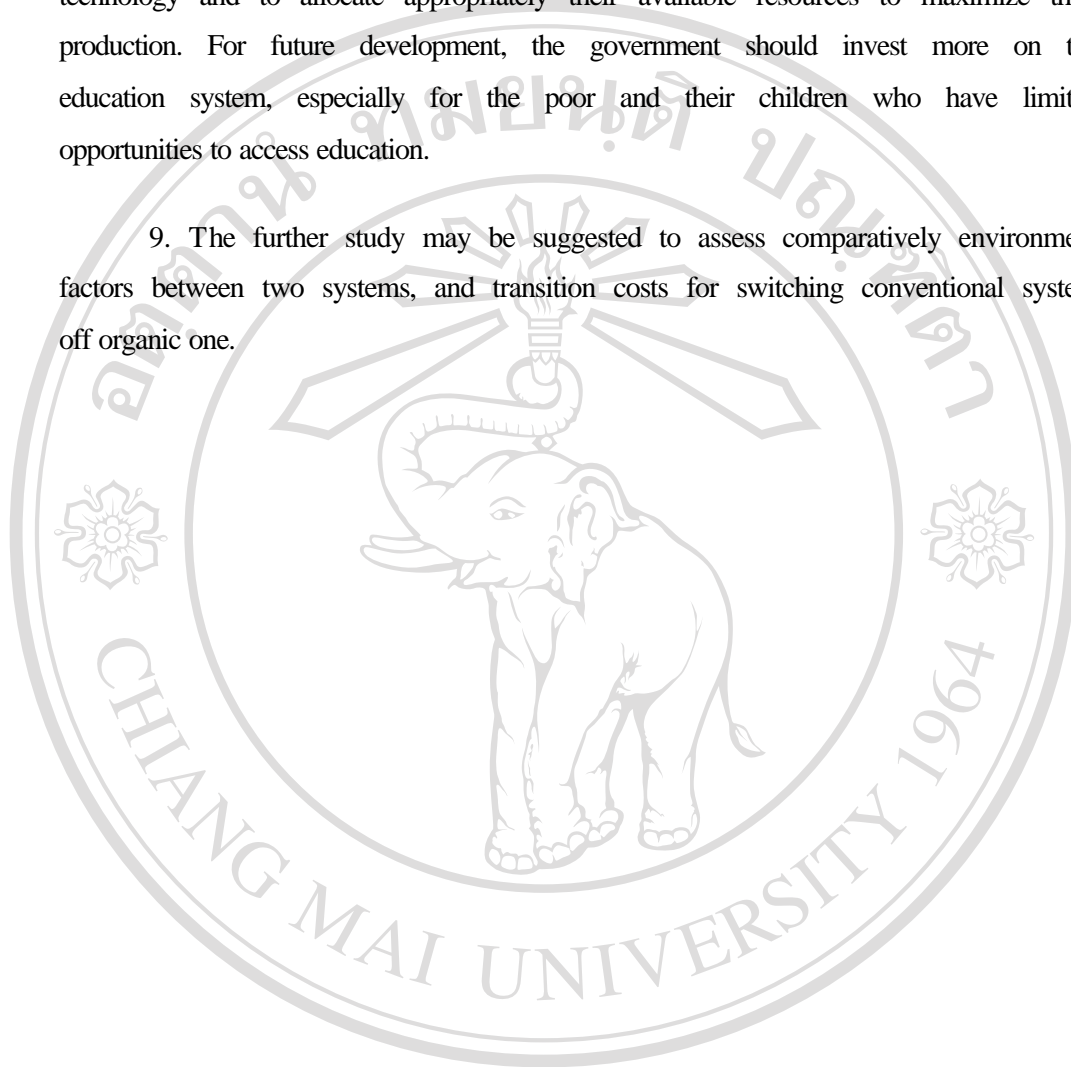
5. Nutrient imbalance is considered as main production problems causing inefficiency in the use of inputs for both conventional tea production. Conventional tea farmers should reduce level of phosphate application, and increase the rate of nitrogen or urea.

7. It was found that low efficiency level was associated with the conventional tea farmers who had lower educational attainment, no used hybrid tea and applied the vegetative propagation in newplanting, and with organic farms had less participated in training courses concerned tea organic farm practices. Any program (e.g. technical assistance, education policies) to help tea farmers increase productivity should be concentrated on these farms.

8. Education attainment was also found as a significant factor in determining yield and level of technical efficiency in both systems. It directly affects ability of tea

farmers in organic and conventional farms to understand the complex nature of the technology and to allocate appropriately their available resources to maximize their production. For future development, the government should invest more on the education system, especially for the poor and their children who have limited opportunities to access education.

9. The further study may be suggested to assess comparatively environment factors between two systems, and transition costs for switching conventional system off organic one.



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