ABSTRACT

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According to the health concerns and awareness of consumer, therefore, the non-pesticide vegetable product is widely accepted in the market. The government tries to support and promote the non-pesticide vegetable production., However there are some problems involving unavailable non-pesticide vegetable and its product in the market. An Increase of technical efficiency is a way to increase non-pesticide vegetable and its product to satisfy the need of consumer in the market. The thesis entitled an estimation of multiple-output production function and technical efficiency of non-pesticide vegetable cultivation in Chiang Mai and Lamphun had three main objectives. Firstly, to estimate of the multiple-output production functions. Secondly, to measure technical efficiency of non-pesticide vegetable growers through an application of the multiple-output production functions. Thirdly, try to find out socio-economic factors that affect technical inefficiency of non-pesticide vegetable growers. In the application of multiple-output stochastic ray frontier production functions, which is a parametric approach, norm was used as explained variable, meanwhile the other inputs and polar coordinate angle were used as explanatory variables. The primary data involving non-pesticide vegetable cultivation in crop year 2000/01 were gathered from 75 sample farms in Chiang Mai and Lamphun provinces

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The research finding of technical efficiency deriving from an application of multiple-output production function showed consistent result with an estimated value deriving from the application of single-output production function. This is due to the polar coordinate angle of Chinese kale and other vegetable had low significant level which imply that increasing or decreasing of Chinese kale instituted the other vegetable from the same amount of inputs , it hardly influenced to amount of output. Therefore, this is a cause of lower quantity of product as compared with its potential quantity. The technical efficiency mean in crop year 2000/01 equaled to 77.53 %. Which indicated that non- pesticide vegetable in Chiang Mai and Lamphun provinces could be increased through the improvement of technical efficiency among vegetable growers. The comparison result of technical efficiency between each planting area found that the technical efficiency in Amphur Muang Lamphun province had the highest value which equaled to 85.26 % and followed by Amphur Saraphi and Amphur Maerim Chiang Mai province which its value equaled to 71.85 % and 56.40 % respectively. This research result indicated that since most of growers in Amphur Maerim and Amphur Sarephi Chiang Mai province were off-farm employment and had a small size of farm land, therefore technical efficiency of the vegetable growers in Amphur Maerim and Amphur Sarephi Chiang Mai province was lower than the growers in Amphur Muang Lamphun province which most of them were not off-farm employment and had a large size of farm land.

Policy recommendations lead to technical efficiency improvement that obtained from this study are as follows, Firstly, the government should encourage the agricultural extension officers try to advise an appropriate production process and input utilization to the vegetable growers that vary by crop type. Secondly, the government should encourage the growers in Amphur Maerim and Amphur Sarephi Chiang Mai province to expand the size of farm land. Thirdly, the government should provide the market facility for vegetable growers so that they can pay more attention to their on-farm employment , especially for the growers in Amphur Maerim and Amphur Sarephi Chiang Mai province.