

Thesis Title Technical Efficiency of Sugarcane Production in Sukhothai Province

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Abstract

One of the most important economic crop of Thailand is sugar-cane which can be approximately yielded 60-80 million ton a year. Most of sugar-cane production are for domestic consumer and the rest of them is for sale in the world market which earns more than ten billion baht/ year as an export income. Although the production can get a lot of country income but the farmers, themselves, have to face with the production costs that are higher than selling prices as well. To understand the problem, this study aims to undertake production; problem factors and technical efficiency analysis and also considers other factors which affect inefficiency to the production.

The aim of the study is to understand the production method, factors, problems and threats and other concerned with sugar-cane farmers which involve with all technical efficiency and inefficiency factors.

On the 102, 712 rai planting area by the year 2004/2005 of 3, 375 survey-farmers, four districts at Sawankaloke; Srisatchanalai; Kirimart and Srinakorn, in Sukhothai province had been found by Stochastic Production Frontier, Translog production equation, MLE; 4.1 Frontier program, that sugar-cane production surely had got Frontier so the studying results of technical efficiency of sugar-cane were as follow:

On the average, the technical efficiency of sugar-cane production clustered, 0.86 percent, at high level and half of survey-farmers, 64.78 percent, showed technical efficiency level was higher than 0.80 percent. Though technical

efficiency of most farmers scattered at a high level but another small group of farmers, 9.51 percent, had got a lowest level at 0.10 percent. Even though only low level of farmers was 9.51 percent but the problems should have been solved by farmers and the organizations concerned as planning and organizing production factors appropriated with each farm.

By production analysis equation, the result of reliability level showed, 90 percent and more, that the positive result of yields related with the quantities of using nitrogen, phosphorus and breeds them. For instance, the increasing quantities of (nitrogen, phosphorus and breeds) one percent/rai would be 17.50, 165.36 and 15.19 percent yield increased respectively and the other variable factors were not enough significance to illustrate yield quantities at 90 percent and more reliability level so another factors used by farmers were nearly the same.

And as the reliability level mentioned above the technical inefficiency study of sugar-cane farmers was found that the positive inefficiency factors depended on sex, education level, the grade of farm instruments and farmer experiences. For more understanding that the more increasing of education level, the grade of farm instruments and experiences of male farmers would be decreasing inefficiency. On the other hand the restriction of investment, labor forces and the amount of planting areas affected to the negative inefficiency. It meant that the increasing of the above restrictions would be also increasing inefficiency.

The research result indicated that the production technical efficiency was related to male farmers, studying level, farm instrumental grade and sugar-cane experiences which were not only affected to the production technical inefficiency but increasing yield also. So farmers, of course, should carefully manage all the mentioned factors by utilizing them for developing the technical efficiency and increasing yield quality.