

**Independent Study Title**                      Total Factor Productivity of Sugarcane Production for  
Ethanol in Mae Sot District, Tak Province

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**Degree**    Master of Science (Agribusiness)

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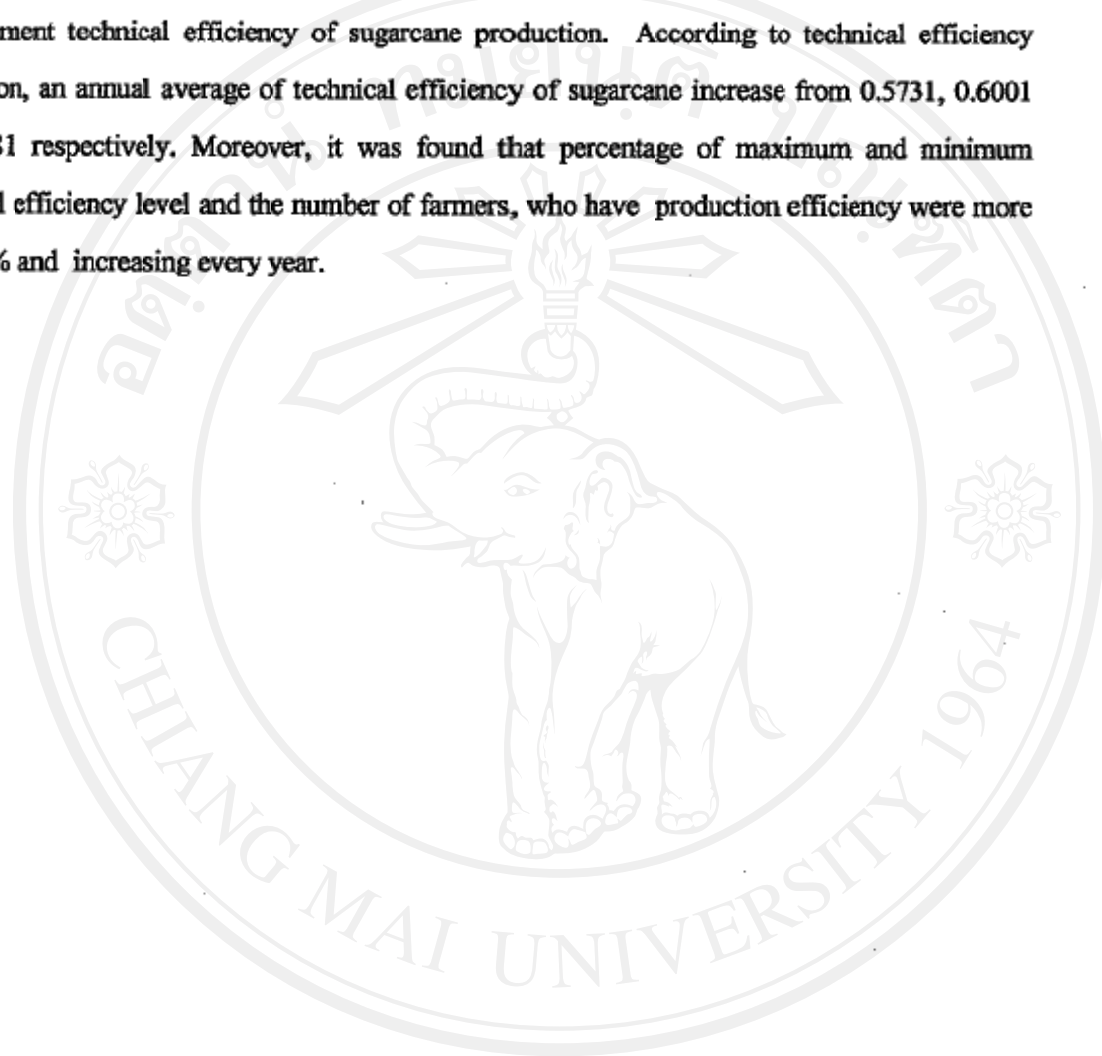
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### **Abstract**

The objectives of this study are, 1) understanding the generality of sugarcane production in cadmium contaminated in farm land, 2) estimate the technical efficiency of sugarcane production in Maesot district, Tak province, and 3) analyze factors effecting to technical efficiency. The specific target group are the farmers who join the sugarcane production for ethanol project in Maesot District. Total of 51 observations using panel data were collected from crop year 2006/07 to crop year 2008/09. Descriptive primary and secondary data of sugarcane production were collected. Quantitative analysis using stochastic frontier approach was employed in the farm of translog production function in order to understanding production function was TE changed when the time is changing.

The results of technical efficiency of sugarcane production for ethanol from using stochastic frontier through maximum likelihood using frontier 4.1 program shown that production function is translog. There is technical inefficiency effect change in the model and also the technical efficiency change when the time is changed. Prevention and controlling cost of pest management significantly effects production at 90% reliability. The interaction term of inputs showed that there are combination of inputs effects in production. Then result, implies that combination of labour with period of planting to harvesting significantly increase when,

decreased the combination of chemical fertilizer with prevention and controlling cost of pest management effect production. When the time pass, the farmer improve their production management skill, learning from to experience and receive more information. This result in improvement technical efficiency of sugarcane production. According to technical efficiency estimation, an annual average of technical efficiency of sugarcane increase from 0.5731, 0.6001 to 0.6281 respectively. Moreover, it was found that percentage of maximum and minimum technical efficiency level and the number of farmers, who have production efficiency were more than 80% and increasing every year.



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