

ABSTRACT

Abstract of thesis submitted to the Graduate School of Maejo University in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Economics

**PRODUCTIVITY EFFICIENCY OF INPUT USES IN MAJOR AND
SECOND RICE PRODUCTION OF THAILAND**

By

SUCHADA KOTCHAREAK

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Chairman: Assistant Professor Dr. Varaporn Punyawadee
Department/Faculty: Department of Agricultural Economics and Cooperatives,
Faculty of Agricultural Business

The objectives of this research were to study 1) the production function of the major rice and the second rice of Thailand ; and 2) productivity efficiency of input use for the major rice and second rice production of Thailand. Secondary data during the years 1972 - 1996 were used in the multiple regression analysis by means of the SPSS for Windows.

The results of the production function of the major rice indicated that the semi-log form production function model could explain the relationship between yield quantity and production inputs of the major rice better than the linear form equation and double-log form equation. The production inputs i.e harvested area (Hm), labour (Lm) and mean annual rainfall (Rm) could significantly explain the changes in the yield quantity at the 95% confident level. The most important factor was labour followed by harvested area and mean annual rainfall.

The study of technical efficiency of the major rice showed that an increase in harvested area (Hm) by one rai increased the major rice output by 138.23 kilograms; an increase in labour (Lm) by one man increased the major rice output by 691.15 kilograms; and an increase in mean annual rainfall (Rm) by one m.m. increased the major rice output by 2,488.17 tons.

The study of the economic efficiency analysis revealed the ratios of marginal value product (MVP) of major rice to the unit prices of harvested area and labour were 2.7433 and 1.6593, respectively. This indicated inefficient use of these two inputs in major rice production. At the existing price structure, farmers would receive more profits by the increase use of harvested area and labour .

The results of the production function of the second rice indicated that the semi-log form production function model could explain the relationship between yield quantity and production inputs of the second rice better than the linear and double-log form equation. The production inputs i.e. harvested area (Hs) and labour (Ls) could significantly explain the changes in the yield quantity at the 99% confident level. The most important factor in explaining yield variation was harvested area .

The study of the technical efficiency of the second rice showed that an increase in harvested area (Hs) by one rai increased the second rice output by 521.37 kilograms; and an increase in labour of agriculture (Ls) by one man increased the second rice output by 115.86 kilograms.

The study of the economic efficiency analysis revealed the ratios of marginal value product (MVP) of the second rice to harvested area and labour were 10.4601 and 2.1646, respectively. This indicated inefficient use of these production factors, i.e. lower than the optimal level.