

Thesis Title ENERGY CONSUMPTION IN RICE LAND  
PREPARATION : A CASE STUDY IN CENTRAL  
AND NORTHEASTERN REGIONS OF THAILAND

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#### ABSTRACT

In rice growing, land preparation is the important starting stage and it consumes the major part of working hours and energy consumption. There are many patterns of land preparation and each of them has different working hours used and energy consumption. Nowadays, there is no information for the farmers to support their decision making for selecting the appropriate land preparation pattern to save time and energy consumption.

This study was undertaken with the purpose to survey and study the patterns of rice land preparation in the intensive rice growing area of the country, they were

Central and Northeastern regions. Then, the patterns of rice land preparation were grouped according to the types of rice farming practice and types of power sources. The working hours of working animals or energy consumption of tractors per rai of planting field were calculated and compared within or among the groups.

The results of the study show that. there were two groups of rice land preparation in Central region. They were dryland type land preparation and wetland type land preparation. There were two patterns D and E in dryland type land preparation and three patterns A, B, and C in wetland type land preparation. For the first group, pattern D consumed less energy than pattern E but the working hours was in reverse. For second group, pattern C consumed the least energy and working hours but there was no significantly difference between patterns B and C.

In Northeastern region, there were two groups of rice land preparation. They were animal power group and two wheeled tractors group. Animal power group could be classified into two patterns, F and G. There was no significantly difference between working hours of both patterns. The last group had only one pattern, it was pattern H. The working hours used by pattern H was less than half of patterns F and G and it was also the lowest when compared to pattern A, B, and C.