



COMPARISON OF CARBON BUDGET IN PADDY FIELD WITH DIFFERENT
CULTIVATION PRACTICES

MISS TASSANEE JAPHASU-ANAN

ID: 48920116

A THESIS SUBMITTED AS A PART OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN ENVIRONMENTAL TECHNOLOGY

THE JOINT GRADUATE SCHOOL OF ENERGY AND ENVIRONMENT
AT KING MONKUT'S UNIVERSITY OF TECHNOLOGY THONBURI

2ND SEMESTER 2009

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Miss Tassanee Jiaphasu-anan

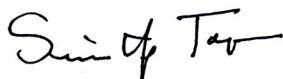
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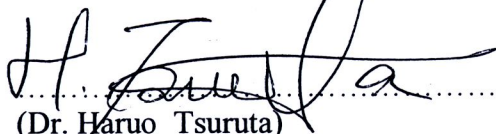
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with mid-season drainage as the suitable cultivation practice for methane mitigation and rice production.

. Regardless to effect of water drainage, carbon mass balance during the two cultivation was established for carbon budget in stubble plot (S), burning plot (B), straw and stubble incorporate plot (I). Results showed that repeating incorporate residues tend to increase the potential for carbon storage in soil as seen in the carbon budgets of I plot which was negative in first crop and then step up positive value in second crop (-52 and 9 gC/m²). On the other hand, those burning field (B plot) carbon budget showed negative value with both crops (-180 gC/m² and -150 gC/m², respectively), which indicated more carbon loss from the soil than unburned practice. Consequently, in order to maintain sustainable cultivation of rice field with straw management, it is recommended to consider not only CH₄ emissions, but also the potential of the carbon budget.

Keywords: CH₄ emission, Water drainage, Rice straw management, Carbon budget

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