

Topic: Greenhouse gas mitigation cost of biochar application to soil

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ABSTRACT

The application of biochar to soil is one of the potential greenhouse gas mitigation technologies. However, little information is available about the costs associated with the implementation of this technology in Thailand. Accordingly, this study investigates the costs of carbon sequestration in soil through the use of biochar produced from different feedstocks, such as mangrove, rice husk, bamboo, corn cob and mixed softwood. This cost estimate includes the steps from crop production to application to soil. Several field surveys and farmer interviews were made to collect the information necessary for cost estimates. The results reveal that greenhouse gas mitigation costs for mangrove, rice husk, bamboo, corn cob and mixed softwood biochar were approximately 381, 9,845, 1,677, 28,413, and 3,489 THB/tonCO₂e, respectively. These costs varied on the costs associated with biomass feedstock production and pyrolysis technology being applied by different farmers. In addition, the mitigation costs also depend on the carbon sequestration potential, of which is related to the carbon content of the each feedstock and biochar produced. The result of greenhouse gas mitigation cost is important in selecting an appropriate feedstock for biochar production and biochar application to soil in Thailand.

Keywords: Biochar, Global warming, Greenhouse gas, Mitigation cost, and Agricultural soil