

# BIOCHAR TREATMENT AND ITS EFFECTS ON RICE AND VEGETABLE YIELDS IN MOUNTAINOUS AREAS OF NORTHERN VIETNAM

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## TÓM TẮT:

In Vietnam, uplands cover 3/4 total area, where most of ethnic minority groups reside on. They have a low living standard that is poor and nearly poor standard. Rice and vegetable production play an important role in food security. However, agricultural production faces soil degradation problems. Due to soil erosion and over exploited cultivation, soil is becoming degraded in both quality and quantity, causing low crop yield and quantity. In addition, environment degradation is also a significant barrier for the course of hunger elimination and poverty reduction as well as sustainable development for communities in mountainous regions. This study is to contribute to agricultural sustainable production by providing new biochar technology; test and evaluate the efficiency of biochar application for rice and vegetables in mountainous areas of Vietnam. Biochar functioning is soil fertility enrichment as well as increase of efficiency compost for better crops and environment. To obtain this target, experiments with different biochar rates (0.5 and 2.5 t/ha) with and without NPK and compost incubated with 5% biochar (10 t/ha) were implemented to compare with NPK application for rice and vegetable in Thai Nguyen and Thanh Hoa provinces. Result of experiment show that application of biochar for rice in the first year has increased the plant nutrient uptake (NPK) for rice. If lonely application of 2.5t biochar/ha for rice, grain yields were reduced by 24.7% in spring and 17.9% in summer rice. In comparison with NPK treatment, rice yields were increased by 5.9-22.3% in treatments with biochar and by 26.3-34.2% in treatments of compost mixed with 5% biochar. Application of biochar for vegetables increased the yields by 4.7-25.5%, compared with farmer practices in both sites.

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