

## **Time of incorporation of field legume herbage and its influence on the growth and yield of upland rice**

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### **ABSTRACT**

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Three species of legumes such as mungbean, cowpea, and bushbean were incorporated into the soil at flowering to later stages of growth namely; after 1st, 2nd, and 3rd priming operations. These were followed by two croppings of upland rice.

Significantly lower soil bulk densities were obtained after the first crop of rice when mungbean and bushbean herbage were used as green manure. The pH, O.M., P and K contents of the soil planted to rice were not markedly affected by the species and timing of field legume incorporation. Interaction effects between the two variables on O. M. and pH were noted after the harvest of the first and second crops of rice, respectively.

Most of the growth and yield parameters of both crops of rice were not significantly influenced by the treatments involved. This indicates the feasibility of modifying the usual practice of green manuring at flowering stage to later stages of growth using grain legumes without necessarily sacrificing their expected yields. Cowpea was the most suitable green manure crop for upland rice. Its use resulted in the highest combined net income for two croppings of rice, generating PhP48,698.98 ha<sup>-1</sup> or PhP2.12 income per peso invested.

Regardless of field legumes used, herbage incorporation after the first priming generated an income of PhP1.56 per peso invested while green manuring at flowering stage gave only PhP0.69.

**Keywords:** green manuring, time of incorporation, field legume herbage, upland rice