

**Design And Development Of A Non-Adhesive Biobriquette Production
Machine Using Coffee Husk Waste And Cow Manure**
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ABSTRACT

Cow manure and coffee husk waste are abundant biomass resources that have not been optimally utilized and may cause environmental problems. One alternative utilization of these wastes is as raw materials for non-adhesive biobriquettes without additional binders. This study aims to design and evaluate the performance of a non-adhesive biobriquette production machine made from coffee husk waste and cow manure using variations in DC motor speed. The research employed experimental and quantitative methods with motor speed variations of 5 rpm, 10 rpm, and 20 rpm. The evaluated parameters included the number of briquettes produced, density, and dimensional accuracy. The results show that motor speed variation significantly affects both the quantity and quality of the biobriquettes. A speed of 5 rpm produced briquettes with the highest density of 1.4 g/cm^3 but the lowest production quantity, while 20 rpm resulted in the highest number of briquettes with the lowest density of 0.78 g/cm^3 . A speed of 10 rpm provided a balance between productivity and briquette quality. The dimensional accuracy test showed an error value of 2.9%. It can be concluded that the designed machine is capable of producing non-adhesive biobriquettes effectively, with the best quality obtained at lower motor speeds.

Keywords: non-adhesive biobriquette, coffee husk, cow manure, DC motor, density.