FARM WASTE NO MORE: DESIGN, CONSTRUCTION AND TESTING OF A SOLAR-POWERED MOBILE CROP RESIDUE SHREDDER

A Project Study Report

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ABSTRACT

The Philippines' development has been significantly influenced by agriculture and will remain so in the future. However, it has also been regarded as a major source of pollution. The two primary reasons were identified as the burning of farm waste and an overdependence on chemical inputs. Fuel motor oil, which is used to power conventional shredders, is known to harm the environment. The objective of this study was to build a solar-powered mobile crop residue shredder that would utilized to shred crop residual materials in order to promote the cause of environmental protection. It would provide technology to make the process of shredding such materials easier. The developed machine was successfully fabricated, assembled, and tested, with the results determining its performance, efficiency, and portability. From the parameters obtained, the device has shown an average of 550 grams per minute for grass/leaf type residue and 530 grams per two minutes for stems or twigs, and has shown high efficiency in shredding these types of materials based on the input/output ratio and weight loss from the shredding process. The device was also tested for its portability corresponding to its scope and limitation, whereby data was obtained and signifies that the shredder is indeed movable. With the mentioned results, the researchers conclude the device would be able to provide an ecological machine for ease of labor in the shredding process, which would aid in the aim of reducing the adverse effects of agricultural practices.