

Modification of a Human Powered Lawn Mower

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Abstract : The need to provide ecologically-friendly and effective lawn mowing solution is crucial for the well-being of humans. This study involved the modification of a human-powered lawn mower designed to cut tall grasses in residential areas. This study designed and fabricated a reel-type mower blade system and a pedal-powered test rig for the blade system. It also evaluated the performance of the machine. The machine was tested on some overgrown grass plots at College of Education Staff School Ilesa. Parameters such as theoretical field capacity, field efficiency and effective field capacity were determined from the data gathered. The quality of cut achieved by the unit was also documented. Test results showed that the fabricated cutting system produced a theoretical field capacity of 0.11 ha/h and an effective field capacity of 0.08ha/h. Moreover, the unit's cutting system showed a substantial improvement over existing reel mower designs in its ability to cut on both the forward and reverse phases of its motion. This study established that the blade system described herein has the capacity to cut tall grasses. Hence, this device can therefore eliminate the need for powered mowers entirely on small residential lawns.

Keywords : effective field capacity, field efficiency, theoretical field capacity, quality of cut

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