Design, development and evaluation of a power operated maize sheller (Spiked Disk Type)

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ABSTRACT
The machine mainly consists of shelling unit, reduction unit (worm and worm gear type) and single-phase 1-hp electric motor. The power from electric motor was transmitted to the worm shaft and then from gear shaft to the shelling unit shaft. The developed power operated maize sheller was tested in laboratory as well as operations at load for short durations. The analysis of data collected during the short duration test revealed that the machine is stable and strong and its speed of operation 60 rpm was quite satisfactory. The shelling capacity of the machine was 100.25 kg grains/hr with shelling efficiency of 99.95 % and cleaning efficiency of 99.37%. The breakage percentage was 0.406 which is well within the prescribed limit for such machines. The labour requirement was reduced by 89.60 % using this machine.

Key words: Grains, Maize, Sheller, Shelling unit, Maize sheller.