

## Studying and evaluating the performance of locally fabricated and developed maize sheller

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**ABSTRACT:**

A corn sheller machine was fabricated and developed locally, which comprised of a shelling cylinder and a central longitudinal shaft located inside, whereby threshing chains are also attached. Multiple openings in the machine were made: inlet for entering the corns/kernels, grain outlet, and cobs outlet. A sieve is placed downward for separating grains out of its cobs. The machine is powered by an electric motor, along with different rotational speed alternatives, gained by changing belts and pulley sizes. The sheller was evaluated by changing shelling time, from 30 to 40 sec, along with diverse rotational speeds of 270, 470 and 670 rpm, and various machine feeding rates of 4, 7 and 10 kg. Using factorial experiment according to the Complete Randomized Design (CRD), and Least Significant Difference (LSD) to test the means, the experiment was conducted at the probability of 0.05, with three replications. The results showed that the time of shelling effected significantly on the shelling ratio, shelling efficiency and unshelled grains, whereas it didn't influence significantly on the power consumed and broken grains. Changing the rotational speed and machine feeding rate led to a significant effect on the shelling ratio, power consumed, shelling efficiency, unshelled grains and broken grains. The combination of shelling time (30 sec), speed of 470 rpm and weight of 10 kg recorded the best indicators that can be relied on and considered to be credential in the test.

**Keywords:**

Corn sheller, Shelling, Corn shelling, Corn thresher.