

**IMPROVEMENT AND TESTING OF A MECHANICAL MOTOR-
OPERATED ORGANIC FERTILIZER GRINDER**

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*Improvement and testing of a mechanical
motor-operated organic fertilizer grinder
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ABSTRACT

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A motor-operated organic fertilizer grinder was developed at Bancod, Indang, Cavite and was evaluated at the College of Engineering, Cavite State University, Indang, Cavite.

The machine was made based on the design of Quiñones (1999) with some improvements made. The improved machine obtained the clearance or spacing between the hammer blades of $1/8''$, and the clearance between the hammer blades and the screen obtained was 0.2 cm, so that all organic fertilizers could be reduced further to smaller particle size and to eliminate leftovers on the screen.

Actual tests were conducted using three screen sizes, $1/4''$, $3/16''$ and $5/16''$. It was observed that the machine obtained the highest grinding capacity at 1600 rpm having value of 144.933 kg/hr at screen size of $5/16''$. The size of the screen had no significant effect on the machine grinding efficiency.

The angular speed did not influence the grinding efficiency of the machine. The angular speed of 1600 rpm gave the highest grinding efficiency value of 97.330 percent for $5/16''$ size of screen. Hence, tests showed that the interaction between the sizes of the screen and the angular speed did not affect the grinding efficiency of the machine.

Results showed that the capacity of the improved machine was significantly higher than that of the first prototype. The initial cost of the machine was P 8720.00. And the cost of grinding was P0.215/kg.

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