IMPROVEMENT AND EVALUATION OF A MOTOR-OPERATED COFFEE DEPULPING MACHINE

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ABSTRACT

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A motor-operated coffee depulping machine was improved at JTEC Machine Shop and Engineering Works located in Luciano, Trece Martires City and evaluated at Cavite State University – Coffee Processing Center and DAFE Room 2. The principal components of the machine are the hopper, water inlet, feeder, cylinder, rubberized plate, 1 hp electric motor, pulley and belt assembly, and frame. The rotating cylinder was redesigned to improve the depulping efficiency and wholeness of parchment coffee produce. The machine was evaluated with three blade clearances (7 mm, 8 mm and 9 mm). The performance of the machine was evaluated in terms of depulping capacity, depulping efficiency and wholeness of beans.

The improved coffee depulping machine generated a depulping capacity of 274.24 kg/h, efficiency of 71.56 percent, and wholeness of parchment coffee with a mean percentage of 93.83. The blade clearance had no significant effect on the time of depulping. The blade clearance of 7 mm showed the highest depulping capacity and depulping efficiency. 8 mm blade clearance showed the least damaged beans. The separation of parchment coffee from pulp was improved without damaging the beans.