

## **Design, Fabrication and Performance Evaluation of Millets (*Eleusine coracana*) Cleaning Machine for Domestic Level**

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Finger millet is one of the most important food in human diet in the past as same as at present; because it contains large amount of nutrients. At the same time finger millet has a high demand in the society because most of diabetic patients are recommended to include finger millet in their diets. At present cleaning of finger millet is done manually, but it is rather difficult because it takes more time to separate impurities from the threshed finger millet. Many types of processing equipment have been developed and these machines are expensive and require more electricity to operate. However there is no machine has been developed to separate impurities from the threshed finger millet in domestic level. As a solution for this, a finger millet cleaning machine was designed, fabricated and evaluated at the National Institute of Post-harvest Management, Anuradhapura. The evaluation of the machine performance was done based on the following parameters: separation efficiency, separation loss, cleaning efficiency, cleaning loss at different feed rate, sieve slope and motor speed. Three level of sieve slopes (0°, 3°, 5°), three level of motor speeds (250, 500, 750 rpm) three level of feed rates (125, 250, 500 g/min) were used. The experimental design was three factor factorial with CRD. The minimum losses and maximum efficiencies were achieved at 5° sieve slope, 500 rpm and 250 g/min feed rate. At that level the machine capacity was 15 kg/hr, separation efficiency 95.23%, and cleaning efficiency 99.5%. Cost for the machine was Rs 10,000.00. Therefore this machine can be introduced as lower cost and easy to operate finger millet cleaning machine for domestic use.

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