

Development of a Mango Dicer for Agro-process Units in India

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The mango (*Mangifera indica* L) is one of the most important tropical and subtropical fruit of the world and is popular both in the fresh and the processed form. The process of preservation of food in common salt or in vinegar is called pickling. Spices and edible oil may also be added to the product. Mango pickle processing is one of the traditional activities in India. Some entrepreneurs use semi-automated or automated machines in their food processing plant. However, for cottage level and small scale pickle production industry, use of above type of automated machines is not economically viable and feasible. Especially, such industries at off grid locations/ remote areas require manually operated machines with an appropriate technology, less power consumption and adaptable prices suitable for such industries. The scope of this project is to design, develop and evaluate a mango dicing machine with following design parameters: low capacity; suitable for cottage industries; operated by foot in order to remove drudgery; safe operation; hygienic and being able to locally fabricate.

The research project was conducted to design, develop and evaluate a manually operated mango dicing machine with a view to introducing for cottage level and small scale pickle industry in India. The mango dicer which simulates the traditional method of mango dicing consists of main frame, cutting blade assembly, lever mechanism, feeding and discharging hoppers. The performance of the machine was evaluated in terms of capacity, dicing efficiency, breakage percentage and percentage of loss. The dicer was tested using two mango varieties of “desikeri”. The capacity, dicing efficiency, breakage percentage and percentage of loss pertaining to the machine was 25.75 kg/h, 87.10 %, 1.74 % and 0.69 % respectively. The mechanical cutting is faster to handle large quantities with hygienic and safety. It does not require any special skill to

operate it. Hence, this machine is very useful for pickle industries having 200-250 kg per day capacity especially at off grid locations.