

**PERFORMANCE EVALUATION AND ASSESSMENT OF CUTTING  
DEVICES FOR SUGAR PALM (*Arenga pinnata*) SAP TAPPING**

Undergraduate Thesis  
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## ABSTRACT

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The study was conducted to evaluate and assess the performance of different cutting devices for sugar palm sap tapping through set of qualitative and quantitative parameters. Seven cutting blades were selected and evaluated which include five metal cutting jigsaw blades, a sickle and a ceramic knife. Data gathering was accomplished from February 2014 to March 2014 at Cavite State University and at Brgy. Harasan, Indang, Cavite. Preliminary field test and laboratory test were performed. Data collected from the laboratory test were analyzed using the Analysis of Variance in a Randomized Complete Block Design and Duncan's Multiple Range Test.

The preliminary test showed that the jigsaw blade with 24 teeth per inch (TPI) failed twice during the field test, thus, was eliminated from the list of cutting blades for laboratory evaluation. In terms of speed of cutting, the jigsaw blade with 9 TPI (Class 2) exhibited the best performance. In terms of thickness and smoothness of cut, the sickle and ceramic knife provided better cut. In terms of ease of operating, safety and sharpness of blade, the power jigsaw with blade of 9 TPI (Class 2) showed good performance among others. Lastly, in terms of noise emission level, performances of all cutting blades were acceptable. The use of ceramic blade as sap tapping device is highly recommended as it satisfactorily met both quantitative and qualitative requirements, moreover, it offers an advantage of reduced hazards to food safety through lesser contamination when used.